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The Contributions that Quarantine, Sanitary Measures and Eradication Can Make to Preventive Medicine *

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> "What in the whole range of medicine is so striking as this invasion of the yet living and unbroken frame by a power which, like an evil spirit of the olden time—unseen, untraceable, and unbidden, enters in and takes possession, and holds riot and revel there, to issue forth again reinforced by a countless progeny?"
>
> WILLIAM BUDD (1863).

In his presidential address Dr. Stableforth gave a general picture of the multiple factors involved in the control of disease. It is my privilege to deal more fully with the eradication measures which may be employed to control infectious diseases, and this can best be done by describing the control of some of the major epizootics in Great Britain and then passing on to the adaptation of these methods required for the eradication of two more chronic diseases, namely, tuberculosis and mastitis.

Sanitary and quarantine measures could obviously not be applied to the control of epidemics until the concept of infectious disease was fairly well understood. The story of "this intellectual progress" has been told by Winslow (1944). It would appear that Aristotle realised the infectiousness of some diseases (Webb, 1936) but Fracastorius in his work on "Contagion and contagious diseases and their treatment," published in the 16th century, was the first to give a clear account "of the way in which living 'germs' operate, without ever suspecting that they were living." It will be shown later, however, that it was not until about 1880 that the germ theory of disease was fully accepted.

CATTLE PLAGUE

Cattle plague, or rinderpest, is a highly fatal and infectious disease. Cattle are probably infected chiefly by the respiratory tract but also by ingestion. Rinderpest virus is fairly persistent outside the body, the disease spreads by mediate as well as direct contact, and it does so equally well in all parts of the world. It can affect other ruminant animals besides cattle. For all these reasons it is, if uncontrolled, the most serious disease of livestock.

Fortunately it is fairly susceptible to control by adequate sanitary measures. The ravages of rinderpest were directly responsible for the foundation of the veterinary colleges in Europe towards the end of the 18th century and most of the early legislation for control of animal disease was aimed at the control of rinderpest. Suitably adapted legislation was then used for the control of other diseases, so the way this knowledge and legislation developed will be considered in some detail.

At intervals throughout the middle ages, the movement of armies, and to a lesser extent trade, spread rinderpest from Russia into central and western Europe (Gamgee, 1866, *286*)† and it is of interest that Fracastorius was one of the first to give an accurate description of these epidemics (Fleming, 1871, *128*)‡. A particularly severe outbreak of rinderpest was studied by two Italian physicians, Ramazzini and Lancissi, in 1711. They independently recognised its infectiousness (human plague was generally recognised as infectious at this time) and Lancissi in particular outlined effective measures of control: "All roads and by-paths should be carefully guarded, so that no ox or dog be allowed to enter the country. Any animal so entering should be forthwith destroyed and buried. Should the pestilence, however, gain admission, the separation of the sick from the healthy must be enforced by decree. Indeed, in my opinion, by far the safest course is instantly to destroy the animal, and with the poleaxe, so that no infected blood may escape on to the ground; for, in attempting to cure the diseased animal, the veterinary surgeon may convey the plague to healthy oxen. . . . The clothes of the shepherds also should be fumigated. The dead carcases, from which not one hair is to be removed, must be buried in deep pits; and any saliva or secretions which may drop from them on the way to the pit are to be carefully removed" (*205*). These measures are sufficiently modern in outlook and it is stated that nine months after their adoption the disease was brought under control.

Rinderpest occurred at Islington in September, 1714 (this was not its first appearance in Britain) and Mr. Bates, Surgeon to George I, was appointed to investigate the outbreak, assisted by four Justices of the Peace (*209*). It is not clear whether he knew of Lancissi's work, but he adopted exactly similar measures. Cow houses were washed and fumigated and cows burned or buried, but it took much effort in a country where "every man is at liberty to dispose of his cattle as he pleases" to make cow keepers "sensible that it was each man's particular interest to comply with these methods." There was some spread of the disease beyond London, but it was entirely eradicated by Christmas and Bates pays tribute to the work of the four J.P.s—"it was the indefatigable care and diligence of these four gentlemen, who gave a daily attendance, both early and late, that secured Great Britain from that terrible ravage, which was made by this distemper in several parts of Europe." In all about 6,000 cattle were lost and the King paid compensation from his own Civil list.*

This appears to be the first clear demonstration in Great Britain of the value of sanitary measures for the control of epidemic disease in animals or man. From 1711–14 the same epizootic is said to have killed one and a half million cattle in Western Europe and it is estimated (Gamgee, 1866) that during the 18th century 200 million cattle died of rinderpest in Europe. Our method of eradication was being acclaimed, and where possible, followed by continental authorities up to 1859 (*223*); it is perhaps characteristic that the English seem to have forgotten all about it.

In 1745 cattle plague was again imported into London, probably from Holland (*270*). It was described by a number of medical men including a Dr. Lobb, who said: "As the distemper proceeds, more parts of the blood are transmuted into the quality of those which produced it, and more infectious particles will be emitted from the body of the sick beast, and the danger of other cattle near the sick will daily very much increase. . . ." (*281*).

Unfortunately a year was spent in looking for cures. It was not until 1746 (*285*) that an Order in Council was passed declaring the disease infectious and prescribing the slaughter of infected beasts, disposal of carcases and bedding, cleaning and fumigation of sheds. The movement of in-contact animals was also prohibited and herdsmen had to change their clothes if they went from an infected to a clean herd. Local authorities did not carry out the orders effectively, however, and the disease continued to spread; towards the end of the year fairs and markets, and the movement of cattle northwards beyond the Trent and Humber were prohibited. During 1749 about 80,000 cattle were slaughtered and the same number in 1750; it is estimated that double the number died of the disease (Gamgee, 1866, *295*). Much attention was given to rinderpest during the parliamentary session of 1753–54, and the necessity for the prompt carrying out of all regulations was emphasised, but it was not until 1759 that there was a day of general rejoicing to celebrate the final eradication of the plague.

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* Presented to the Central Veterinary Society at the Meeting held in the Royal Veterinary College, Camden Town, on November 6th, 1947.

† Figures in italics are the page references.

‡ The subsequent account of rinderpest up to 1870 has been taken largely from Fleming (1871). Fleming's account is partly based on that of Gamgee (1866) but he quotes numerous other original sources *in extenso* (figures in italics show the page references in Fleming's book). Another account, including a description of the 1865 epidemic, was written by Simmonds & Brown (1868).

* This visitation of the German plague was attributed by some to the unpopular new German dynasty and Fleming (*213*) quotes an old poem showing how the less scrupulous took advantage of compensation from the Civil list:—

"Some cunning huxters, who had cows
Old, dry, and lean, not worth a souse,
Tho' sound in health, but scarce deserving
Of pasture, to prevent their starving,
These wisely knock'd 'em on the head
By night, when neighbours were in bed.
Next day assign'd their expiration
To this new fatal visitation:
Then like true hypocrites, put on
A mournful look, as if undone,
And claim'd the sum of forty shilling
For every cow of Heaven's killing—
A gen'rous bounty, that destroy'd
More cattle than the plague annoy'd."

Rinderpest was again introduced into England and Scotland in 1769 and 1770 (*299*), but with the recent experience of the outbreak from 1745–59 still fresh it was dealt with vigorously under various Orders in Council. Owners were indemnified for the slaughter of cattle (*301*) and the importation of foreign animals, and hay and straw was prohibited (Simmonds & Brown, 1868, *240*). In 1771 Mr. Robert Dossie, " an eminent agriculturist," wrote a remarkable account of the disease (*307–357*) in which he emphasised its infectious nature, but criticised the official quarantine period of 40 days. He advocated a period of ten to twelve days which was the one eventually accepted 100 years later.

It would appear that even before 1770 when the importation of cattle was prohibited, importations had been small and in general English flocks and herds were normally free from the epidemic diseases which had afflicted those on the Continent. Of the 20 or so outstanding breeds of livestock in temperate climates all but a few are of British origin. They were developed largely during the 18th century when the introduction of turnips and clover had rendered possible the adequate feeding of livestock during the winter, and it seems possible that the relative freedom from epizootics may have been an important contributory factor in aiding British stockmen to achieve supremacy.

This happy state continued until 1840 when the needs of the growing town population and the general belief in free trade demanded importation of cattle and sheep. The results of the importations provided a dramatic demonstration of the necessity for proper quarantine measures. About 1840 foot-and-mouth disease* and pleuropneumonia (Gamgee, 1863 ; Fleming, 1882, *487* ; Report, 1888) were introduced,† and as Budd (1863) said, three severe outbreaks of sheep pox occurred within the space of 16 years, although it had not existed in England for the whole thousand years before 1840.‡

In 1847, following upon outbreaks of sheep pox, an Act was passed empowering the Queen in Council to prohibit the importation of sheep, cattle and other animals, or to admit them after quarantine (Brown, 1893, *4*). In 1848 an Act was passed to prevent the spread of contagious or infectious disorders among sheep, cattle and other animals and contained powers to prohibit or regulate the movements of animals, including horses, meat, birds, etc. (Gamgee, 1866, *213*).

In 1854 and 1855 the widespread epidemics on the Continent caused apprehension and following representations of the Royal Agricultural Society enquiries were made by the Foreign Office. Further representations were made by the Royal Agricultural Society in 1857 and an Order-in-Council was passed prohibiting the importation of cattle and their products from infected areas. Unfortunately there was much opposition to this Order and Professor Simmonds, of the Royal Veterinary College, who had been sent to investigate the diseases on the Continent, advised the Royal Agricultural Society that pleuro-pneumonia had been confused with rinderpest and the danger greatly over-estimated (he came back with precisely the report suited to the Government policy, Smith, 1933, *150*). The Order was revoked in 1857 (Gamgee, 1866, *325–329*). In 1864 the Government attempted to introduce legislation to control cattle plague but was defeated (Gamgee, 1866, *2*).

William Budd (1863), one of the outstanding figures in human epidemiology, in an interesting monograph on sheep pox, remarked that at this time " quarantine and all other measures intended to prevent the introduction of disease from abroad had fallen into discredit, if not into disuse. Contagion, as a cause of epidemic disease, had come to be looked upon as a thing of small account. Worse still, the strange and fatal delusion had got hold of men's minds, that the specific poisons of specific contagious disorders may be bred for the nonce, anywhere out of filth, organic impurities, of what not. It seemed to be a waste of power to be taking precautions against the importation from without of what might turn up any day as a home product."

The attitude of mind deplored by Budd may seem surprising in view of the " modern " methods adopted for the control of rinderpest in the 18th century. It was, however, representative of medical opinion at the time (see Winslow, 1944) which was dominated by the " miasmatic " theory of disease. Budd's views were not generally accepted by his medical colleagues and he deplored their lack of interest in the diseases of animals which were so much more susceptible to controlled observations than human epidemics. He said : " The only scientific accounts of them must be sought for in the works of veterinarians . . . the allusions of English physicians to the diseases of animals are only remarkable as betraying their ignorance of the whole subject." Pasteur's work on infectious diseases during the 1870's was largely in the animal field and it was not until 1882, when Koch demonstrated the bacterial nature and infectivity of tuberculosis, that the bacterial origin of infectious disease was widely accepted (Winslow, 1944).

At the first international Veterinary Congress in 1863,* which was sponsored by John Gamgee, largely in the hope that it would educate his countrymen in England, all the major epizootics were accepted as infectious and quarantine regulations laid down. The British public were quite unimpressed, however, and it is unfortunate that the professors at the London Veterinary College, who advised the Royal Agricultural Society, also doubted the value of sanitary measures. By this time pleuro-pneumonia and foot-and-mouth disease were widespread in Britain and foreign cattle were being imported from many parts of Europe. Since 1858 Gamgee had been doing his utmost by articles in the *Edinburgh Veterinary Review* and letters in the Press, to warn people that rinderpest would inevitably be imported. His concept of disease may best be illustrated by the following quotation from the monograph on Cattle Plague : " Diseases of all kinds are attributable to predisposing and exciting causes. The majority of maladies require a combination of agencies to induce them ; but there are some which can only be developed by one unchangeable and specific means, which we designate contagion† . . . an animal can only be seized with rinderpest as the result of direct or indirect communication of the rinderpest virus from a diseased to a healthy animal. These are accepted truths which somewhat shock the minds of people unacquainted with the mysterious operations of nature." It is no wonder that he and Budd collaborated in their work (Budd, 1865).

In May, 1865, rinderpest was imported into Hull, exactly as Gamgee had prophesied, by cattle from Russia (Gamgee, 1866, *336*). It spread to London by June, and thence to Holland. Gamgee's advice that the disease should be controlled by slaughter and sanitary measures was scorned ; all the experience of the 18th century appears to have been forgotten. Steps could have been taken under the Act of 1847 to control the movement of animals, but instead there was another frantic search for " cures." In July, 1865, the first Cattle Plague Order enforced the notification of diseased animals and the Veterinary Department was founded (Simmonds & Brown, 1868, *266*). A Royal Commission was appointed in September, 1865, but neither the first nor second report of this Commission, published in October, 1865, and February, 1866, contained the essential recommendation for the slaughter of affected animals. The third report, published in May, 1866, contained much information, including the results of experimental investigations, but by this time, as will be shown, the disease was largely controlled. By February, 1866, rinderpest had spread to all but the most remote parts of the country, and nearly 18,000 animals were being attacked each week. The Cattle Diseases Prevention Act was then put into force (Simmonds & Brown, 1868, *272*, 359). It compelled local authorities to slaughter all affected animals and disinfect premises which then had to be left unoccupied for 30 days ; it empowered them to slaughter healthy in-contact animals when this was considered desirable. The remarkable improvement in the position is illustrated in Fig. 1, and by the end of June less than 500 animals were attacked per week. In 1867 local authorities were required to appoint at least one inspector, and rinderpest was again eradicated in September, 1867. In 1868 the Veterinary Department produced an outstanding report of 400 foolscap pages on the epidemic, with explanatory maps and tables.‡

* It appears that birds did not carry foot-and-mouth disease from the Continent before 1840 ; it seems doubtful, therefore, whether they have done so since.

† Gamgee (Anon., 1863) analysed the effect, on the home meat supply, of importing cattle. Despite large importations the total meat supply did not increase because of the reduction due to diseases in our own stock. A similar analysis on the effect of importing poultry carcases from areas where Newcastle disease exists might also provide interesting results.

‡ This is probably not entirely true as there is evidence that the disease existed during the 13th and 16th centuries (Fleming, 1882, *514*).

* The proceedings of the first and second International Veterinary Congress were published in Gamgee's monograph, 1866.

† It is interesting to compare Gamgee's views on the nature of disease with those of Ryle (1942) some 80 years later : " Pursuing our argument a little further, it becomes apparent that a specific factor is one which determines the species, kind or nature of a disease. As such it is a *sine qua non*. It is no more the determinant of the arrival or the amount of a pathological change than are some of the other factors concerned. The definition, however, does not imply that specific factors lack quantitative variations and effects. The relatively stronger effect in the chronic than in the acute diseases of such non-specific factors as age, sex, habits and occupation is clearly in part a " temporal " one and due to sustained influences. To such influences the quick tempo of the acute diseases allows little or no play.

‡ These early reports were very different from the stereotyped Government reports with which we have become familiar and the personality of the author is often evident. Thus Brown (1877, 43) describes the methods adopted in Germany for the control of cattle plague : " All domestic animals excepting horses, mules, and asses are to be kept shut up. If found running about they are to be seized and slaughtered. Dogs and cats are to be killed and buried. The bringing in and sending away of cattle, hay, straw and other infectable things is to be forbidden. If disease extends to many farms in the locality it is to be entirely surrounded by military sentinels ; none but indispensable intercourse with the inhabitants is allowed. Divine service, schools and other assemblages are to be suspended, beershops and taverns to be closed.

The roads through the locality are to be barred for the time. If the place is near a railway station no train must stop there unless the station can be entirely isolated from the infected place."

Brown continues : " If the proposition were fairly put that our herds could only be saved from extermination by the adoption of these measures the conclusion would necessarily be ' so much the worse for the herds ' ; but happily we have succeeded in demonstrating that cattle-plague can be stamped out by measures which do not seriously interfere with the liberty of the subject, on condition that more time be expended in the effort."

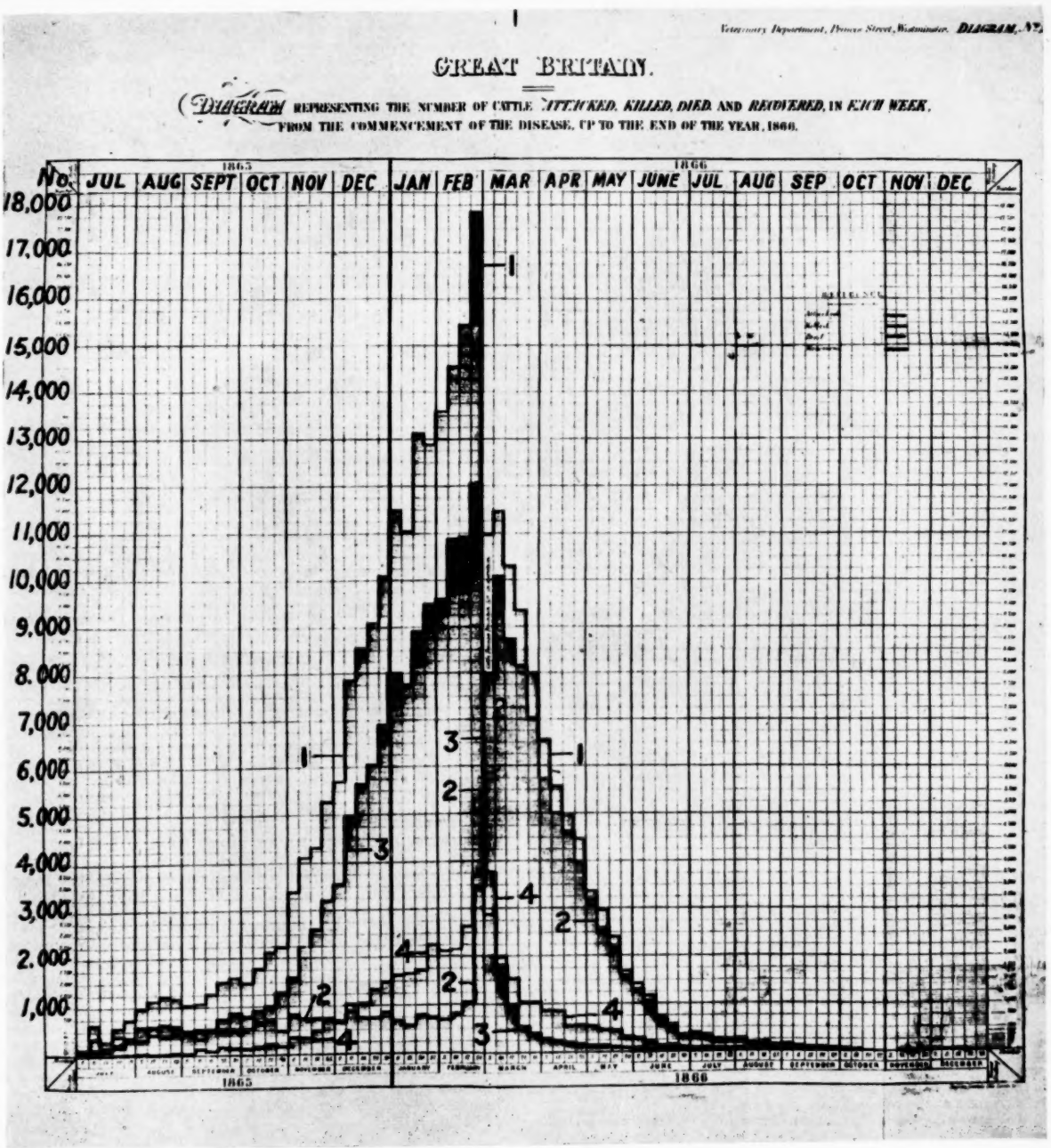

FIG. 1

Figs. 1 and 2 are photographed from the original report on the Cattle Plague (1887) in the library of the Royal College of Veterinary Surgeons. They are both reduced in size so that some of the printing is illegible and in the original of Fig. 1 the curves were in colour. In the reproduction essential figures have been super-imposed and the curves numbered for identification. The Cattle Plague Order was put into operation in February, 1866, and it will be seen that the disease was immediately brought under control.

The curves are numbered as follows:—

1. Number of animals which were attacked per week.
2. Number of animals which were killed per week.
3. Number of animals which died per week.
4. Number of animals which recovered per week.

In all 278,943 cattle were attacked and 56,929 healthy animals were slaughtered to prevent spread of the disease. An inspection of Fig. 2 (Overleaf) shows that the disease was severe around London, Hull and Edinburgh (Leith), all ports where European cattle were landed.

Cheshire was the most severely affected county in England, probably due to the opportunity for spread provided by intensive dairying methods; 93,880 cattle, or 68·1 per cent. of the estimated normal population were attacked and only 13,907 of these recovered (Report,

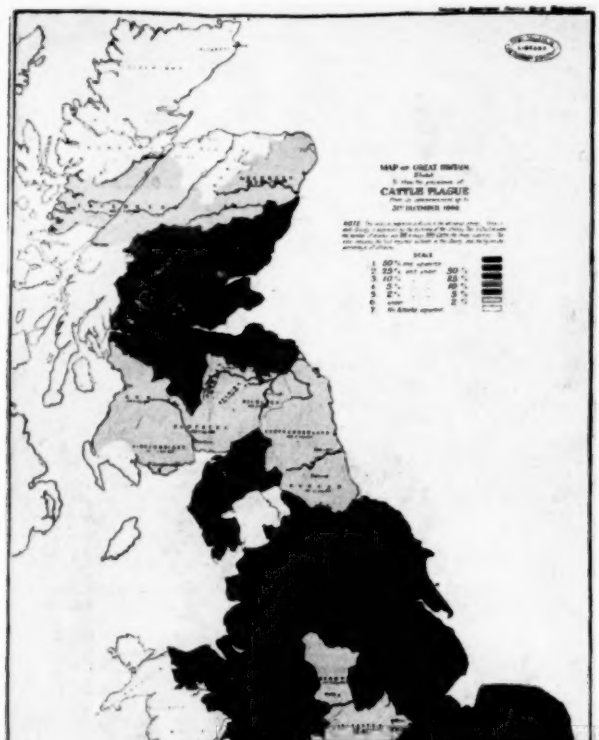

FIG. 2

This map should be compared with that showing the present day incidence of tuberculosis (*Vet. Rec.*, 1948, *60*, 304).

1868, *221*). Ireland, and Wales except for a small area in the north-east, remained free of rinderpest, and the incidence was low in the south-west and north of England. It is of some interest that these are the areas of the United Kingdom with the lowest incidence of tuberculosis at the present time (Francis, 1947).

The Cattle Diseases Prevention Act was only a temporary measure and in 1869 the Contagious Diseases (Animals) Act was passed giving much wider powers to the Privy Council, and the Veterinary Department took over from the Customs authorities the control of imported cattle. Nevertheless, rinderpest was again imported in 1872 and 1877 (Brown, 1872, *41*; 1877, *110*), but effective action was taken and only 72 and 263 animals were attacked in the two outbreaks. A revised Contagious Diseases (Animals) Act was passed in 1878, which laid the foundations for the methods now in force. In 1884 an Act was passed prohibiting the importation of cattle from many European countries affected with epizootic disease. This Act was no doubt rendered possible because other supplies of meat had become available due to the great development of the Merchant Navy (Cope, 1898, *7*).

There are methods of cheaply and quickly producing a solid immunity against rinderpest and these obviously play a large part in control wherever the disease is endemic (Francis, 1946).

Pleuro-Pneumonia

Unlike rinderpest, pleuro-pneumonia can probably only be spread directly from animal to animal by the inhalation of infective particles (Brown, 1876; Gadsden, 1888, *295*; Cope, 1898; Walker, 1930). It is a more chronic disease than rinderpest, not so easily diagnosed (M'Fadyean, 1891), and recovered animals may act as carriers for long periods. We have already seen that it was imported into Great Britain about 1840 but no effort was made to control it until 1869 when the Contagious Diseases (Animals) Act was passed, and from 1870 onwards we have information regarding the number of outbreaks, and of animals attacked. It is estimated (Cope, 1898) that prior to 1869 about 45,000 animals were attacked. The Act of 1869 empowered, but did not compel, local authorities to slaughter animals suffering from pleuro-pneumonia. Subsequent events are shown in Fig. 3. In 1870 over 4,000 animals were reported as attacked and in 1872 nearly 8,000.

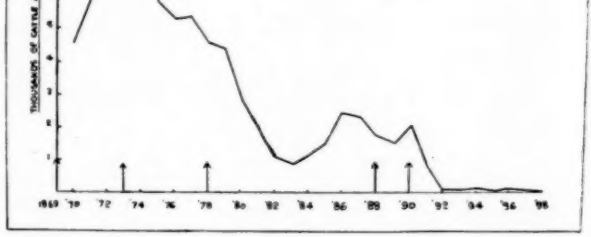

FIG. 3

The graph shows the number of animals attacked per year and the arrows show the time when the various measures of control were introduced.

From 1873 onwards the slaughter of affected animals wa compulsory, and a period of 28 days' isolation was enforced on contaminated herds after the occurrence of the last case. These measures apparently had some effect on the incidence of the disease, but up to 1878 it continued to claim over 5,000 victims annually.

In 1878 new regulations of a more stringent nature were introduced. Local authorities were empowered (but not compelled) to slaughter all animals that had been exposed to the risk of infection, and the period of isolation was lengthened to 56 days. Under this regime there was at first a marked decline in the prevalence of the disease, the numbers of animals attacked having fallen in 1883 to 931. But in 1885 it again began to get the upper hand, and in the four following years the number of animals attacked averaged over 2,000 annually.

For some time vaccination had been advocated to control the disease, particularly by members of the Highland Agricultural Society. In 1888 a Departmental Committee (Report, 1888) took extensive evidence on the subject and recommended the slaughter of all diseased and in-contact animals. In coming to this decision they were largely influenced by the evidence of Mr. Lameris who described how inoculation had failed and slaughter succeeded in eradicating the disease from Holland (see Brown, 1885; Butel, 1889). It is of interest, however, that Mr. Stephenson had eradicated pleuro-pneumonia from Newcastle under the permissive legislation of 1878; he was strongly in favour of slaughter, and administration by the central authority (Report, 1888, *85*). M'Fadyean also advocated slaughter of diseased and in-contact animals and neither could imagine how inoculation could eradicate the disease (Report, 1888, *149*).

In 1888 in order enforced the slaughter of both diseased and in-contact animals, but left the carrying out of all measures connected therewith, and the raising of funds for compensation, to the local authorities. The Order was promulgated in March, 1888, and it continued in force till September 1st, 1890. Notwithstanding the severely repressive character of this measure, it failed to make any important headway against the disease, for in 1889 and 1890 the numbers of animals attacked were respectively 1,646 and 2,057.

On September 1st, 1890, the Pleuro-pneumonia Act came into force. It may be said to have simply transferred the carrying out of the provisions of the Slaughter Order of 1888 from the numerous local authorities to a single central authority—the Board of Agriculture. It explicitly empowered that Board to cause the slaughter of any animal suspected of being affected with pleuro-pneumonia, and to employ the additional inspectors, etc., necessary for the carrying out

of the Act. After 1890 there was a sudden drop in the number of animals affected and the disease was finally eradicated from the London dairies in 1898 (Cope, 1898) after having caused the loss of about 200,000 cattle. The disease still continued in France where inoculation was practised (Cope, 1899). In 1898 " the three kingdoms " were free from cattle plague, pleuro-pneumonia *and* foot-and-mouth disease.

It will be seen that because of the fragility of the infective agent and the necessity for direct infection, pleuro-pneumonia is fairly easily controlled when adequate measures are taken. Because of the lack of reliable means of diagnosing latent disease in the 19th century all in-contact animals had to be slaughtered.

The extreme importance of adequate sanitary measures is illustrated by the effect of importing one cow affected with pleuro-pneumonia into Australia in 1858 (Gamgee, 1863; Cope, 1897). She was slaughtered soon afterwards, but sanitary control was inadequate and the disease has been endemic in Australia ever since. The disease was also carried by a few infected cattle from Scotland to Norway in 1860, and from England to America in 1847, where it caused great havoc. Tuberculosis was probably imported into these and other countries of the New World at about the same time or a little earlier (Francis, 1947).

Tuberculosis

This disease is much more chronic and difficult to diagnose clinically than pleuro-pneumonia. In addition the tubercle bacillus remains capable of producing infection for considerable periods outside the animal body. Cattle are much more susceptible to infection by way of the respiratory than the digestive tract and this infection can occur by inhalation of exhaled droplets or of dried dust particles. It is obvious from the foregoing that tuberculosis, like nearly all other diseases of cattle, spreads chiefly in the cowshed; there is little spread between cattle at pasture and the danger from infected pastures is very slight. Very few lung-lesions in cattle heal completely, but excretion of bacilli is irregular and this probably explains the failure of schemes to reduce the incidence of tuberculosis by attempting to detect and remove all " open " cases of the disease by clinical and bacteriological diagnosis.

The incidence of a disease has an overriding effect on the method of control to be adopted and it is obvious that when nearly every herd contains some tuberculous animals, in-contact animals cannot be slaughtered. Control therefore depended on the development of a reliable diagnostic method, which was provided by Koch's tuberculin in 1890. The available evidence indicates that cattle react to tuberculin within 20 to 30 days of infection and that this period is seldom extended beyond 60 days (Francis, 1947). The old subcutaneous test was cumbersome and it was not until 1908 that the intradermal test was developed. The single intradermal test was officially adopted in the U.S.A. in 1920, and rendered possible the large-scale work of eradication which has now been virtually completed. The method adopted was the slaughter of reacting animals, on an area basis, together with the usual sanitary measures.

There has been some confusion about the incidence of tuberculosis in Britain. The average incidence in *old* dairy cows is doubtless in the region of 40 per cent., but it is estimated that only 17 to 18 per cent. of all cattle in Great Britain are tuberculous and even in heavily infected herds the incidence in the young stock is often low. In 1925 " tuberculin tested " milk was officially recognised and in 1925 an order provided for the slaughter of cows with various forms of clinical tuberculosis, but the Attested Herds Scheme introduced in 1935 was the first serious attempt to control tuberculosis in Britain. This is a voluntary scheme, the provisions of which are too well known to need description. Despite war-time difficulties the scheme has made important progress and there are now over one million cattle in attested herds or about 12 per cent. of the cattle population (Anon., 1947) and the Minister of Agriculture has power to begin eradication on an area basis whenever conditions are suitable. It is encouraging to note that a similar voluntary scheme, eventually becoming compulsory, has almost eradicated tuberculosis from Denmark where the incidence and conditions were similar to those in Great Britain.

The use of B.C.G. or a similar vaccine has been advocated as an aid to the eradication of bovine tuberculosis. It is true that B.C.G., the vole acid-fast bacillus and probably any tubercle bacillus of relatively low virulence, may often produce a striking immunity against an acute tuberculous infection. The available evidence, however (Francis, 1947), indicates that it is much less effective against continuous natural infection. The whole course of tuberculosis indicates that the host is not capable of producing an immunity of anything like the same order as that against rinderpest or even pleuro-pneumonia. Just as in pleuro-pneumonia it would seem that straightforward eradication measures will, on the whole, give better results than vaccination. One herd of 14 cows observed by the writer originally contained ten reacting animals; these were replaced by non-reactors over a period of 14 months. The reacting animals were placed at one end of the shed and the stalls disinfected, but no other precautions were taken and none of the fresh animals became reactors. If they had been inoculated with B.C.G. and there had been no unvaccinated controls the result would have been taken to indicate the value of B.C.G.

Mastitis

We have seen how an acute and readily diagnosed disease such as rinderpest may be eradicated. The greater difficulty of eradicating more chronic and less obvious diseases has been illustrated by reference to pleuro-pneumonia and tuberculosis. In the latter disease the specificity and reliability of diagnostic methods is all-important and this is equally true in mastitis.

Before discussing this aspect of the subject, it is necessary to decide whether mastitis associated with *Str. agalactiae* is an infectious disease which can be controlled by the eradication methods, suitably modified, which have been successful in other diseases.

It has been widely suggested that mastitis associated with *Str. agalactiae* infection has greatly increased during recent years because of the strain of high milk production and modern methods of dairying, but this view has previously been questioned (Francis, 1944). Wilson & Cunningham (1947) have shown that only six of 328 suckled cows were infected with *Str. agalactiae*, whereas in the same district 30 to 40 per cent. of milked dairy cows were infected. Many of the suckled cows, however, were of the high milk yielding variety and beef cows milked in a dairy herd developed the usual incidence of *Str. agalactiae* infection. It was, therefore, not high milk production but the process of milking and life in the cowshed, with the resulting opportunities for spread of bacteria, which caused the high incidence of infection.

There seems to be a common impression that 50 or 100 years ago cows lived in a state of rustic comfort. This is the very reverse of the truth; at that time many of them were kept in indescribably filthy conditions in town dairies and, as we have seen, even those in the country were sometimes afflicted with fatal epizootics. It would not be surprising if under such conditions little note were taken of *Str. agalactiae* infection or pus and blood in the milk. There are, however, some early references to mastitis. Skellet (1807) wrote that: " Inflammation of the cow's udder is a very common disease, in Kent called the yellows (cf. gelbe galt), and its attack is usually sudden; milking cows are most subject to it, but more particularly old ones, and if the complaint is not early checked, the loss of one or more quarters is generally the consequence." This is the oldest clear reference to mastitis which the present writer has found, and it is not mentioned in recent historical papers. Youatt (1834) said that cows are very subject to inflammation of the udder soon after calving and Bang (1889) described what was almost certainly *Str. agalactiae* infection as a common disease which had been known in Switzerland for many years. We can, therefore, conclude that mastitis associated with *Str. agalactiae* infection is a condition which has often arisen, for over 100 years, whenever herds of cows have been milked under the usual dairy conditions.

Early workers such as Nocard & Mollereau (1887), Bang (1889) and more recently Minett *et al.* (1933) and Seelemann (1933) believed that the condition could be treated as a straightforward infectious disease and eradicated by the usual methods of diagnosis, segregation and elimination of infected animals. They reported work which confirmed this view. More recently an attitude of scepticism developed (Minett, 1939; Report, 1944) and this led to much work in which the natural habitat of *Str. agalactiae* and all possible sources of infection were studied. Without describing this work in any detail it may be said that the earlier view has been very largely confirmed. *Str. agalactiae* appears to be a strict parasite of the udder and when the infected udders in a herd are removed or effectively treated *Str. agalactiae* disappears (Francis, 1948*a*). That is, *Str. agalactiae* mastitis may be regarded as an infectious disease in the same sense as rinderpest, although in its epidemiological features it more closely resembles pleuro-pneumonia and tuberculosis. It should be noted in passing that the other organisms associated with mastitis all have other natural habitats apart from the udder, and although they may occasionally produce an infectious mastitis, they usually produce sporadic disease.

Further evidence supporting the view that *Str. agalactiae* is a more specialised udder parasite than a number of other organisms was obtained during work on diagnostic methods which has been described elsewhere (Francis, 1948*b*). It was noted that *Str. dysgalactiae*, *Str. uberis*, staphylococci and *B. coli* did not grow so well in freshly drawn milk as did *Str. agalactiae*. Chambers (1920) showed that the growth of *B. coli* but not *Str. lactis* was markedly inhibited by fresh milk, but this property was destroyed by heating. *B. coli* must be one of the organisms most frequently present in the teat and the natural inhibitory power of milk against this organism may explain the rarity of coliform mastitis. The variations in the natural inhibitory powers of freshly drawn milk from different quarters and

the susceptibility of different organisms to this action does not appear to have been studied since the bacteriology of mastitis was clarified.

It has been demonstrated on fairly numerous occasions that mastitis associated with *Str. agalactiae* can be controlled by the usual eradication methods, but considering the incidence of infection and the nature of the disease it seems that straightforward segregation and disposal of infected animals on a large scale would not be justified without the assistance of effective chemotherapy.

Moderate, but not complete, success has been obtained by the use of the acridines as an aid to eradication (see Minett; Little & Plastridge, 1946). With the advent of penicillin a great deal of work has been published on the proportion of quarters which can be cured by various treatment, but so far very little has appeared on its use as an aid to eradication from the herd. In fact, Murnane (1946) and Arthur (1947) have pointed out that the treatment of clinical cases does little to reduce the incidence of mastitis.

In our work on mastitis (Francis, 1948*a*) we have attempted to show how the chemotherapeutic measures now available may be employed to eradicate infection from the herd. The methods used have been very simple and a high standard of cowshed hygiene has not been demanded. No attention has been paid to infection of milkers' hands, dust, or articles in the cowshed, and although this is probably desirable it has been shown that *Str. agalactiae* quickly dies out in infected dust (Spencer *et al.*, 1946). Infected cows were milked last and the milking units were left in chloros overnight, in addition to the usual morning sterilisation. They were also dipped in chloros after milking each cow. (This dipping can be made much more efficient if a spare set of teat cups is available so that one set of cups can be left in chloros for the four to five minutes that a cow is being milked.) Cows were treated with sulphone or sulphone/penicillin when dry or in late lactation.

The overall results are summarised in Table I and without giving

Table I

Control of *Str. agalactiae* Infection in Four Herds[1]

Herd	No. of cows in herd at 1st test	Degree of infection: Cows No.	Cows %	Quarters No.	Quarters %	Weeks to eradicate infection	Weeks free from infection
1	14	6	42·86	12	21·43	41/32[2]	15/52[2] (3 herd tests)
2	47	21	44·68	35	18·61	46	50 (3 herd tests)
4	20	8	40·00	14	17·50	3	Further tests impossible
5	35	5	14·29	7	5·00	3	32 (3 herd tests)

[1] In herds 1 and 2 the epidemiology of the infection was being studied and effective measures of control were not immediately applied.

[2] Herd 1 was free from infection for the 15 weeks commencing 41 weeks after the first examination but for the next 32 weeks infected cows were introduced after which the herd was again free from infection and remained so for 52 weeks.

any details it may be said that infection has apparently been eradicated in four herds containing a total of 116 cows in which 40, or 34·5 per cent., were infected with *Str. agalactiae* at the first herd test. Only one cow in each of three herds was sold because of persistent infection. The results are still on a small scale, but despite the findings of other workers (Report, 1944) it would seem that infection of the teats played no important part in the epizootiology of the infection in these herds, or at least that this infection disappeared when infection of the udder tissue was eliminated.

Even with the aid of chemotherapy, however, the large-scale eradication of mastitis would be extremely onerous without the development of bacteriological methods more simple than those usually employed. A simplified technique in which milk samples are taken directly into bottles containing a mixture which gives a final concentration of 1 : 20,000 to 1 : 40,000 sodium azide, 1 : 20,000 brom-cresol-purple and 1 per cent. glucose has been described by Francis (1948*b*). The samples are incubated and those showing colour changes at 24 to 48 hours are streaked on aesculin blood-agar plates. *Str. agalactiae* can usually be recognised on these plates without further tests and other organisms associated with mastitis are not inhibited. When once the disease has been brought under control a large proportion of samples do not develop colour changes and these do not have to be plated out, thus saving a considerable amount of labour and material.

Summary

1. The history of cattle plague in Great Britain during the 18th and 19th centuries and the development of legislation designed to control the disease is described as one of the best examples of the value of sanitary and quarantine measures for the control of infectious disease.

In 1715 and later during the 18th century "modern" methods had been used to control outbreaks of cattle plague, but when a serious outbreak of cattle plague began in 1865 (after a long period of freedom from the epizootic) medical men generally believed in the spontaneous origin of disease. There was a frantic search for cures and it was not until February, 1866, when 18,000 animals were being attacked per week, that slaughter of diseased animals and adequate sanitary precautions were enforced by the newly formed Veterinary Department of the Privy Council. There was a rapid improvement and the disease was eradicated in September, 1867. It was not until about 1880 that the specific infectious nature of many diseases began to be accepted.

2. Pleuro-pneumonia provides an example of a disease which is less infectious than rinderpest, but is more chronic and more difficult to diagnose. It had existed in Great Britain for about 30 years before legislation for its control was introduced in 1869 and by this time probably about 45,000 animals had been attacked. A fairly strong active immunity can be produced against pleuro-pneumonia, and during the 1880s there was much controversy over the relative merits of vaccination and slaughter as methods of control, but in 1888 an Order for the slaughter of diseased and in-contact animals was passed. In 1890 an Act transferred the powers conferred by this Order from the local authorities to the Veterinary Department and from that time onwards the incidence of the disease rapidly decreased; it was finally eradicated in 1890.

3. Owing to the lack of sanitary measures during the 19th century pleuro-pneumonia and tuberculosis were imported into the Americas, Africa and Australia.

4. Tuberculosis is less fatal but is even more chronic and difficult to diagnose than pleuro-pneumonia, and in addition, the tubercle bacillus retains its infectivity for a considerable period outside the animal body. The development of the subcutaneous and later the intradermal tuberculin test has rendered possible the large-scale control and virtual eradication of tuberculosis even in countries where there was a high incidence of the disease.

5. Evidence is presented supporting the view that mastitis associated with *Str. agalactiae* behaves as an infectious disease which can be controlled by orthodox methods. Work is described in which chemotherapeutic measures aided by very simple hygienic precautions were successful in eradicating the infection from four herds. This work supports the view that when once *Str. agalactiae* has been removed from the udder of all cows they do not become reinfected unless infected cows are introduced into the herd.

References

Anon. (1863.) Have the importations of foreign stock into England benefited us as a nation? *Edin. vet. Rev.* **5.** 1–9.
——— (1947.) Tuberculosis (Attested Herds) Scheme. *Vet. Rec.* **59.** 631–632.
Arthur, G. H. (1947.) Observations on the clinical aspects of bovine mastitis *Ibid.* **59.** 231–235.
Bang, B. (1889.) Causes of mastitis in cattle. 14. Beretning fra den kg. Veterinaerog Landbohojskoles Laboratorium for landonomiske Forsog. Trans. in Bernhard Bang Selected Works, 17–47. Edited by Vald. Adsersen, 1936.
Brown, G. T. (1872.) Report on contagious and infectious diseases of animals. *Rept. of Vet. Dept.* for 1872, 3–26.
———. (1876.) *Ann. Rept. of Vet. Dept.* for 1876, 3–67.
———. (1877.) *Ibid.*, 1877, 3–67.
———. (1885.) *Ann. Rept. of Agric. Dept.* for 1885, 41–43.
———. (1893.) *Ann. Rept. of Director of Vet. Dept.* for 1893, 3–20.
Budd, W. (1863.) Variola ovina, sheep's small pox, or the laws of contagious epidemics illustrated by an experimental type. Pp. 33. Also published in *Brit. med. J.* **2.** 141–150.
———. (1865.) Observations on typhoid (intestinal) fever in the pig. *Brit. med J.* **2.** 81–87.
Butel, M. (1889.) The eradication of pleuro-pneumonia from Holland. *J. comp. Path.* **2.** 315–318.
Chambers, W. H. (1920.) *J. Bact.* **5.** 527.
Cope, A. C. (1897.) *Ann. Rept. of Proc. under the Dis. of Anim. Acts*, for 1897, 7–41.
———. (1898.) *Ann. Rept. of Proc. under the Dis. of Anim. Acts*, for 1898, 1–13.
———. (1899). *Ann. Rept. of Proc. under the Dis. of Anim. Acts*, for 1899, 7–22.
Fleming, G. (1871). Animal Plagues I. pp. 548. London.
———. (1882.) Animal Plagues II. pp. 539. London.
———. (1944.) The problems of bovine mastitis. *Ibid.* **56.** 421–424.
———. (1946.) Cattle plague. *Ibid.* **58.** 501.
———. (1947.) Bovine Tuberculosis. pp. 220. London.
———. (1948*a*.) Studies on *Str. agalactiae* infection: V. Bacteriological diagnosis. *Vet. Rec.* **60.** 253-257
———. (1948*b*.) Studies on *Str. agalactiae* infection. VI. Observations on the epidemiology of the disease and its eradication by the use of 4 : 4′diaminodiphenyl sulphone alone and in combination with penicillin. To be published.
Gadsden, J. W. (1888.) *Report of the Depart. Comm. on Pleuropneumonia and Tuberculosis.* 295–296.
Gamgee, J. (1863.) Pleuropneumonia in cattle. *Edin. vet. Rev.* **5.** 632–643.
———. (1866.) The cattle plague. pp. 859. London.
Little, R. B., & Plastridge, W. N. (1946.) Bovine mastitis. pp. 546. New York & London.
M'Fadyean, J. (1891.) Pleuropneumonia. *J. comp. Path.* **4.** 333–344.
Minett, F. C. (1939.) The control of chronic streptococcus mastitis. *Ibid.* **52.** 266–272.
———, Stableforth, A. W., & Edwards, S. J. (1933.) Studies on bovine mastitis. VIII. The control of chronic streptococcus mastitis. *Ibid.* **46.** 131–138.
Murnane, D. (1946.) Second report on the treatment of clinical streptococcal and staphylococcal infections of the bovine udder with penicillin. *Aust. vet. J.* **22.** 35–39.
Nocard & Mollereau. (1887.) Sur une mammite contagieuse des vaches laitières. *Ann. Inst. Pasteur.* **1.** 109.
Report. (1868.) Report on the cattle plague in Great Britain during the years 1865, 1866 and 1867, prepared by the Veterinary Dept. of the Privy Council Office. pp. 408.

(*Continued at foot of next col.*)

CLINICAL COMMUNICATION

Splenectomy in the Dog

PAMELA M. REYNOLDS, M.R.C.V.S.,
Ryde, I.W.

Subject.—A five-year-old spaniel dog, which had always been in good health.

Symptoms.—At first these were merely those associated with the appearance of the animal—listlessness, and a drawn and suffering expression which was the most noticeable feature. Temperature was normal. During the next few days breathing became laboured, there was occasional vomiting, and loss of weight was rapid. The pulse was laboured; in fact the heart beats were audible and visible across the room. The mucous membranes were anaemic.

Procedure.—An intestinal foreign body was suspected, but X-ray revealed nothing, and it was decided to carry out an exploratory laparotomy.

Nembutal anaesthesia was used, about two-thirds of the usual dose being taken, and with the customary aseptic precautions a midline incision was made, starting about one inch below the xiphoid cartilage, and extending for about four inches. Stomach and intestines were examined and found to be normal, but the incision was filled with a grossly enlarged spleen. In the absence of any other abnormality, it was decided to remove this.

Operation.—Care was taken to ligate each blood vessel in turn on either side of the point of severance, and for this No. 2 21-day chromic gut was used. No difficulties were encountered, and the operation was completed by suturing the peritoneum and muscles in one layer with No. 4 gut, and the skin with nylon.

Post-operative Treatment.—Two days after the operation the dog's condition was extremely bad. Temperature remained normal, but anaemia and weakness were pronounced. Normal saline had been given subcutaneously since the operation, and on this second day a blood transfusion was attempted. It had to be abandoned as it was found impossible to raise a vein on the patient. On the third day an injection of 2 c.c. of "Plexan" concentrated liver extract was given intramuscularly, and it was found possible to give a little glucose intravenously.

From this day improvement was rapid. The "Plexan" injection was repeated on the fourth and fifth days, and the patient began to take nourishment. On the sixth day after the operation he was lively, and readily taking solid food. He was discharged on the seventh day. The wound had healed by first intention, the stitches being removed on the fifth day.

Comment.—The most striking feature of the case was the incredible improvement in the dog's condition within a few hours of the "Plexan" injection. I have been able to follow up this case, and the dog has been extremely fit since he was discharged. I regret that no pathological examination was made of the spleen. It was about ten inches long by five inches wide, and from ¼ to ½ thick, very hard and "lumpy."

Weekly Wisdom

Many apparently inevitable wars have never occurred.—New Statesman.

* * * * *

Live stock census in Northern Ireland shows that cattle now number 905,000 compared with 885,000 in April, 1947. Sheep have risen to 509,000 from 482,000, and pigs to 314,000 compared with 263,000. Breeding sows show an increase of 31·3 per cent. on last year's numbers.

Report. (1888.) Of Dept. Committee on pleuropneumonia and tuberculosis. Cd. 5461.
———. (1944.) Modes of spread of *Str. agalactiae* infection in dairy herds. *Imp. Bur. Anim. Hlth, Rev. Ser.* No. 2. pp. 27.
Ryle, J. A. (1942.) Aetiology: a plea for wider concepts and new study. *Lancet.* **243.** ii. 29–30.
Seelemann, M. (1933.) Treatment and control of mastitis in the field. *Dtsch. tierärztl. Wschr.* **41.** 259–264, 337–345.
Simmonds, J. B., & Brown, G. T. (1868.) Medical report on the cattle plague. Appendix II to Report, 1868.
Skellett, E. (1807.) Parturition of the cow and diseases of neat cattle. London.
Smith, F. (1933.) The early history of veterinary literature. IV. pp. 161. London.
Spencer, G. R., McCarter, J., & Beach, B. A. (1946.) Reservoirs of infection of *Str. agalactiae*. *Amer. J. vet. Res.* **7.** 32–36.
Walker, J. (1930.) A system of bacteriology. *Med. Res. Coun.* **7.** 322.
Webb, G. B. (1936.) Clio Medica: Tuberculosis. pp. 205. New York.
Wilson, M. A., & Cunningham, A. (1947.) Investigations on bovine mastitis: III. The incidence of infection in suckled cows. *Edin. & E. of Scotland Col. Agric. Techn. Bull.* No. 3.
Winslow, C. E. A. (1944.) The conquest of epidemic disease. pp. 411. Princeton & London.
Youatt, W. (1834.) Cattle: their breeds, management and diseases (1870 edition). pp. 600. London.

(*To be continued*)

NEW INSTRUMENTS AND APPLIANCES

A New Type of Carrier for Insemination Equipment

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Dartington Hall Cattle Breeding Centre, Totnes

An attempt has been made to design a carrier of a type more easily handled than the large box now in general use. The carrier is made of wood and is quite light and convenient to handle. It consists of a flat base on which two uprights are erected. The uprights are joined at the top by a handle which is in the form of a small compartment big enough to carry two syringes with rubber tubing attachments. On the outside of each upright are two spring clips—one a few inches from either end. The clips hold the copper pipette holders which stand upright. One holder is for sterile and the other for used catheters. By this arrangement the catheters can be taken out and replaced without removing the container.

The bottom half of the two uprights is enclosed by a fixed panel at the back and a sliding vertical panel in front. In this enclosed portion the vacuum flask containing the semen is placed on top of tow or cotton wool which can be reached by lifting the sliding panel a little. The flask need not be removed from the box in order to reach the semen tubes. A bottle of disinfectant is carried at the back of the fixed panel in a clip. For cleaning the box the front panel can be completely removed and the flask and cotton wool taken out. The pipette holders are slipped out of the spring clips, so that the wooden carrier alone is left and is easily cleaned. The box can be disinfected on the farm by washing with disinfectant provided that the front panel is closed.

This type of carrier has been in general use for three years at the Dartington Hall Cattle Breeding Centre and has proved very satisfactory.

The box is stable, having a fairly wide base and carrying most of the weight at the bottom. The overall measurements are:—

Height	18 inches.
Base Width	10 inches.
Base Length	15 inches.
Enclosed Base	7 inches square.

The box can be obtained from Messrs. Arnold and Sons, London.

ABSTRACTS

[Botulism in the Dog. (Trans. title.) Mery, F. (1947.) *Bull. Acad. vét. Fr.* **20.** 28-37.]

A brief review is given of the earlier publications of French authors on the subject of botulism in the dog; these stated that the dog was refractory to the botulism toxin. Later publications suggested that the dog owing to a difference in susceptibility might be used as a means of distinguishing between the toxin of type A and that of type B. However, Graham and Erickson in America and Legroux and Levaditi in France showed that botulism of the dog does exist and that it can be provoked experimentally by either the toxin of type A or the toxin of type B.

The author then goes on to describe how he arrived at the conclusion that a naturally occurring disease of dogs hitherto unrecorded in veterinary literature corresponded to experimentally produced botulism. Typical case histories are given and the rapid response to specific treatment (botulinus antitoxin) is described in some of these cases. The author says "these facts do not constitute an absolute bacteriological proof, but they do represent a serious argument in favour of natural botulinus intoxication."

The clinical signs appearing both in the experimental and natural forms involve the eyes and the digestive and nervous systems, and the disease is said to be an afebrile one except in the presence of secondary infections. The sclera is constantly injected and nearly always there develops a superficial keratitis which may be complicated by corneal ulcer, haemorrhage into the anterior chamber and iritis. Constriction of the pupil and strabismus are frequent. The appetite is completely lost and an obstinate constipation dominates the picture. Difficulty in swallowing is noticed. There may be an excessive secretion of stringy saliva but, on the other hand, the mouth may be unusually

dry. The nervous signs are said to be the most important. For the first few days the animal is in a state of stupor, paralysis of the muscles of the neck and shoulders develops and with general weakness the gait becomes inco-ordinate. More or less complete paralysis of the limbs may follow, the animal being in a semi-comatose state with scarcely perceptible respirations; periods of apnoea may occur and death often takes place from asphyxia.

As complications, there may develop a purulent conjunctivitis, broncho-pneumonia and nephritis.

In conclusion, the author states the disease may be rare but it is no longer possible to regard the dog as refractory to botulism. G. F. B.

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[The Treatment of Superficial Infections of Small Animals with a New Bacterial Agent. Kaplan, A. D. (1948.) *Vet. Med.* **43**. 118-123.]

In the search for new chemotherapeutic agents one of the furan group of compounds, viz., 5nitro-2furaldehyde-semicarbazone, named "furacin," was found to be of value. Experimentally it was shown to be effective in mice against *Staph. aureus, Strep. pyogenes, Sal. aetrycke, Tryp. equiperdum* and *Treponema pallidum* but not against the pneumococcus. Bacteria which have become resistant to sulphathiazole, streptomycin or penicillin are still as susceptible to furacin as are the original organisms. Large doses were comparatively non-toxic in trials in man and animals, though very large doses produced hyperexcitability of the central nervous system and respiratory failure. As a wound dressing it was non-toxic, non-irritant and did not retard healing. Good results have been obtained in the treatment of chronically infected wounds in humans, both Gram positive and Gram negative organisms being controlled.

The author used furacin in ointment and in solution as a dressing for superficial infections in dogs and cats and claims excellent results. Sixteen cases are described including an open joint, infected compound fracture and several infected dog bites. In most of these preliminary drainage or débridement was necessary (and might appear to be the chief factor in recovery.—*Abstractor*). Suppurative otitis and conjunctivitis, gangrenous eczema and secondary distemper complications were also successfully treated. J. A. L.

* * * * *

[Brucellosis of Swine. A. B. Crawford & C. A. Manthei, Animal Disease Station, Pathological Div., Bureau of Animal Industry, Agricultural Research Administration, U.S. Dept. of Agriculture, Washington, D.C., March, 1948. Circular No. 781.]

Brucella suis, the cause of this chronic disease of pigs, is closely related to *Br. abortus* and *Br. melitensis*. Characteristics of the disease are: abortion, stillbirths, weak pigs, sterility, testicular swellings and posterior paralysis. Infection is via the dam's milk, food, premises and environment, mating a sow with an infected boar, and carriers of infection are owners, from infected markets and sales. Pigs of all ages are affected, and in young pigs the infection has been known to persist in the blood stream for eight months. Boars are more often affected in the sex organs, whilst spinal infection is sometimes encountered. In the sow the organism may persist for 34 months, and indefinitely in the uterus, causing metritis. Elimination from the body is via discharges and secretions.

The agglutination test is not so valuable as in cattle abortion, as *Br. suis* does not produce agglutinins in uniform amounts. Some pigs give titres of 1 : 25 and even 1 : 50 in non-infected herds. The test is only of value in diagnosing herd infection. Animals in herds suspected of being infected should be blood-tested, and if titres of 1 : 100 or over are found, the herd should be considered infected. A herd is free of infection when no animal shows a titre of 1 : 100 or over on two tests carried out from 30 to 60 days apart, where there is no previous evidence of infection, and where there have been no additions within the last three months.

"Brucellergen," made from *Br. suis* for intradermal testing, gives a more sensitive reaction as well as more non-specific reactions. This and blood-testing may be combined. Drugs are useless, so is "Strain 19." *Br. suis* of low virulence (King strain) increases resistance to natural infection for a few months, but is hazardous, in view of possible return to full virulence, and chance of human infection. Two plans suggested for U.S. herd cleaning are: 1 (for small commercial herds): Clear out whole herd and disinfect, etc. Replace with pigs from infection-free herds only. 2 (for breeding herds): Segregate negative weaners after blood-test. Dispose of all other pigs in herd. Disinfect.

Br. suis infection in man is most likely to be met with in those handling infected animals and meat: symptoms are as for undulant fever and *Br. abortus* infection. D. J. A.

REVIEWS

[Cardiovascular Studies. Kenneth J. Franklin. xvi + 306 pages, 102 illustrations. Crown 4to. Blackwell, Oxford, 1948, 42s. net.]

Following his "Monograph on Veins" and co-authorship of "The Foetal Circulation and Cardiovascular System," Franklin now presents us with a most comprehensive account on certain aspects of the mammalian heart.

This book is concerned chiefly with the Eustachian valve and tubercle of Lower, and, in the style with which we are now familiar, the author leads us first through a masterly historical introduction on all of importance that has been written about these two cardiac structures since the days of William Harvey.

To the evidence thus presented, Franklin adds information from the study of a large series of mammalian hearts, in many of which he was able to correlate cineradiographic records of the blood flow during life—a technique for which we owe much to him and his co-workers in Oxford—with the *post-mortem* structural findings and so introduces a new concept. Briefly this can be stated as that the maximum height of the Eustachian valve can be correlated with the direction of the anterior/superior caval flow: the more the anterior/superior caval flow is directed towards the inferior/posterior caval opening, a factor associated with among other things the development of Lower's tubercle, the higher the Eustachian valve will be. In the testing of this concept the author introduces two new terms: *index of the heart*, which is defined as the maximum height of the Eustachian valve expressed as a percentage of the heart length; and *type of heart*, which is an indication of the direction of the anterior/superior caval blood flow.

There follows a description of individual hearts, providing the evidence on which these conclusions are based and also unparalleled information on the general features of many species which should prove invaluable to those who in future investigate special features of the heart.

If a specific veterinary interest is required, it can be stated that the majority of species considered are non-primate. In the species with which we are more directly concerned the Eustachian valve is absent and the tubercle of Lower well developed, although, as is proved herein, the different orientation of the heart in biped and quadruped cannot be associated with this statement.

The book is well illustrated, containing pictures of rare specimens, line drawings and cineradiographic records, and the general and specific bibliography is voluminous. It can be confidently recommended to anatomists, physiologists and students of the history of science as a work of reference of the highest order.

* * * * *

[Cat and Camera and **Dog and Camera.** Henry C. Stacey. Fountain Press, 1948. 8s. 6d. each net.]

It is indeed opportune that these two books should have been received together for review. The subject of "Cat and Dog" is one which has far-reaching implications by virtue of the contrast of the characters of the two subjects. Both have their staunch supporters and violent enemies who in turn eulogise their pet and damn their enemy.

The photographs of our canine friends are delightful in themselves. Whilst their quality is good, the selector has been clever in achieving such a variety of photographs, nearly all of which show the dog in one of its many moods. They are also an education in the study of breeds.

The collection of the cat must from the outset have been more difficult to compile and does not quite achieve the perfection of the other set. The quality of the photographs here and there leaves something to be desired though the extreme difficulty of achieving photographs of this animal must not be overlooked. Furthermore, the cat does not "carry its heart on its sleeve" and shows its moods in a more subtle way than does the dog.

The remarks on animal photography in both issues will certainly prove helpful to the amateur.

NATIONAL AGRICULTURAL ADVISORY SERVICE

Mr. L. G. Troup, O.B.E., B.SC., Senior Education and Advisory Officer in the National Agricultural Advisory Service, is leaving the Service in September, 1948, to take up an appointment as Agricultural Director and Bursar of the Lord Wandsworth College in Hampshire. Mr. J. A. McMillan, O.B.E., B.SC., at present Provincial Director for the Eastern Province, will succeed Mr. Troup as Senior Education and Advisory Officer at Headquarters. Mr. J. H. Anderson, N.D.A., at present Deputy Provincial Director for the South Western Province, will succeed Mr. McMillan as Provincial Director for the Eastern Province.

Victoria Veterinary Benevolent Fund

ANNUAL GENERAL MEETING

The 30th annual general meeting of the members of the Victoria Veterinary Benevolent Fund was held at 10, Red Lion Square, London, W.C.1., on Tuesday, June 1st, 1948.

The chair was taken by the President (Mr. Arnold Spicer) and there were also present: Professor T. J. Bosworth, Messrs. Esmond Brown, Wm. Brown, Professor J. B. Buxton (hon. treasurer), Mr. H. W. Dawes, Dr. J. T. Edwards, Professor A. A. Forsyth, Mrs. D. I. Glover, Mr. R. E. Glover, Professor J. McCunn, Messrs. R. Macgregor, G. P. Male, Capt. T. M. Mitchell, Capt. J. W. Procter, Major L. P. Pugh, Mr. H. W. Steele-Bodger, Lt.-Col. P. J. Simpson (hon. secretary), Major H. Summer, Professor G. H. Wooldridge. In attendance Mr. C. W. Francis (Accountant). Apologies for absence were received from Mr. and Mrs. G. N. Gould, Mr. J. Holroyd and Dr. W. R. Wooldridge.

The notice convening the meeting, having been published in *The Veterinary Record*, was taken as read.

Minutes.—On the proposition of the President, the minutes of the last annual general meeting, having been printed and circulated, were taken as read and signed as correct.

Election of Officers

President.—On the proposition of Professor G. H. Wooldridge, Mr. Arnold Spicer was unanimously elected President for the ensuing year.

Four Vice-Presidents.—It was unanimously agreed—"That the four Vice-Presidents, namely, Professor J. B. Buxton, Messrs. H. W. Dawes, G. P. Male, and Professor G. H. Wooldridge be re-elected."

Honorary Secretary.—On the proposition of the President, seconded by Professor G. H. Wooldridge, Lt.-Col. P. J. Simpson was re-elected Honorary Secretary.

Honorary Treasurer.—On the proposition of the President, seconded by Mr. H. W. Steele-Bodger, Professor J. B. Buxton was re-elected Honorary Treasurer.

Honorary Solicitor.—On the proposition of Professor G. H. Wooldridge, seconded by Mr. H. W. Dawes, it was decided that Mr. R. V. Thatcher be appointed as Honorary Solicitor for the ensuing year in place of the firm of Messrs. Thatcher and Son in view of the fact that he has always given his personal services in a honorary capacity.

Auditors.—Messrs. Wilkinson, Chater and Co., were reappointed Auditors of the Fund.

Annual Report and Statement of Accounts

The annual report was presented by the President page by page.

Arising out of the report, it was decided to circularise all Divisions and Branches of the N.V.M.A. with a view to drawing their attention to the fact that, by subscribing annually, they were entitled to nominate one of their members as a Member of the Council of the Fund.

Mr. H. W. Dawes proposed, and Mr. H. W. Steele-Bodger seconded, that a special vote of thanks be sent from this meeting to our Australian confrères for their great generosity in sending gift parcels of food to the recipients of this Fund.

Mr. H. W. Steele-Bodger raised the point of more food and clothing being sent to the recipients by members of the fund, and it was decided that this matter be left in the hands of the Council.

Mr. H. W. Dawes proposed, and Mr. H. W. Steele-Bodger seconded, the reception and adoption of the report, which was agreed to.

Election of Ten Members of the Council.—The Hon. Secretary reported the resignation of Mrs. W. G. Wragg. The President thereupon proposed that the name of Mr. Arthur Whicher, M.R.C.V.S., who has been such a great supporter of the Fund in the past, be substituted for that of Mrs. W. G. Wragg, and that the remaining members, namely Mrs. R. E. Glover, Professor T. G. Browne, Messrs. John Holroyd, H. W. Steele-Bodger, Dr. W. R. Wooldridge, Col. G. B. Rees-Mogg, Mr. and Mrs. G. N. Gould and Capt. J. W. Procter, be re-elected. (Agreed.)

Any Other Business.—Mr. H. W. Dawes proposed, and Professor G. H. Wooldridge seconded, a hearty vote of thanks to the Executive Officers and to include the name of Mr. C. W. Francis, for their services during the past year, which was carried unanimously.

Vote of Thanks.—The meeting closed with a vote of thanks to the President for his conduct in the chair.

P. J. Simpson, *Hon. Secretary.*

QUESTIONS IN PARLIAMENT

Fowl Pest (Losses)

Sir John Barlow asked the Minister of Agriculture the total losses in numbers and value due to fowl pest during the last convenient 12 months.

Mr. T. Williams: About 180,000 birds were slaughtered owing to fowl pest during the 12 months ended June 30th under the instructions of my Department. I have no record, of course, of the birds that died from the disease before my Department became aware of outbreaks, but the number is probably of the order of 20,000. The value of the birds that have died and been slaughtered is estimated at about £210,000.

Sir J. Barlow: Will the Minister say whether more recent outbreaks are diminishing?

Mr. Williams: The number of outbreaks in April, May and June, was 12, 20 and 25, respectively.

Mr. Bowles: Is the Minister and his advisers quite satisfied that killing is the only way of stopping this pest, or will he examine with an open mind any proposals for a kind of cure rather than slaughter?

Mr. Williams: The action taken was the best upon the expert advice available to me, but should there be any proposal of an alternative means of dealing with the problem I will be very happy to look at it.

Mr. Tolley: Is my right hon. Friend satisfied that the steps so far taken by his Department are effective in stamping out this disease?

Mr. Williams: I am certain that the various orders which we have issued have been extremely useful in reducing the number of fowl pest outbreaks.

. . . . .

Young Horses (Slaughter)

Mr. Sutcliffe asked the Minister of Agriculture if, in view of the indiscriminate slaughter of young horses, which is leading to a shortage for farm work, he will consider prohibiting the slaughter, except in cases of accident or sickness, of all working horses imported into England and Wales for a period of six months from date of arrival.

Mr. T. Williams: No, Sir. I am not aware of any appreciable shortage of horses for farm work, nor would the scheme suggested be easy to enforce or be likely to produce significant results.

Mr. Sutcliffe: Is the right hon. Gentleman aware that competition by slaughterers at auction sales for every available horse, many of which are in first-class condition, has raised the price to such an extent that small farmers in my constituency are unable to buy them for hay making, a purpose for which they are vitally necessary, and will he not do something to regulate this traffic?

Mr. Williams: I can assure the hon. Member that we are in close touch with the National Farmers' Union and if they find that there is a tendency to reduce the number of horses below the requirements of agriculture, I am sure they will be the first to make representations.

Lieut.-Colonel Sir Thomas Moore: May we assume from those two answers that the Government have no intention of giving any support to the filthy traffic in worn out horses?

Mr. Williams: The hon. and gallant Gentleman can make no such assumption.

Sir T. Moore: Oh!

Mr. Chamberlain: May we assume from this that horses are actually imported into this country for slaughter?

Mr. Williams: I believe that a few horses have been imported for slaughter, but where the carcase meat goes, whether for human consumption or for animals, I am unable to say. What I am sure about is that if the suggestion which has been made were applied and horses were not sent here, but were sent somewhere else they would be slaughtered anyhow.

Mr. Chamberlain: This is a horrible suggestion, and will the right hon. Gentleman look into it a little further and let the House know some details of this traffic?

WHEY FEEDING AND RISK OF TUBERCULOSIS

The attention of stockowners who use liquid whey for feeding to pigs, as a supplement to their ordinary rations, is drawn (by the Ministry) to the fact that whey may be responsible for tuberculosis among pigs. It has been found that the incidence of tuberculosis in pigs fed on whey is high and that in such pigs the disease often assumes an acute form. Consequently, the carcases of pigs fed on whey are more frequently condemned on account of tuberculosis infection than are the carcases of other pigs. In order to guard against this danger all whey should be boiled before it is fed to pigs.

ROYAL COLLEGE OF VETERINARY SURGEONS
Membership Examinations, July, 1948

List of Successful Candidates

(*Continued from page* 356)

Edinburgh

First Examination:

Baldwin, E. G.
Bonn, J. M.
Bowler, R. K.
*Boycott, B. R.
*Brown, R. D.
Chew, S. K. (C)
Dawson, R. T.
Drake, T. J.
*Duberley, W. R.
Duguid, I. M.
*Edgar, James
*Edgar, J. T.
*Fisher, E. W.
*Fleming, Miss H. E.
Forrest, W. T. (C)
*Goodchild, W. M.
*Greig, N.
Harris, A. H. (C)
Hill, A. R. E.
*Kidd, J. N.
*Leslie, P. G.
McCulloch, A. F.
Mackenzie, C. P.
MacLennan, D. J.
Mallalieu, J. M. (C)
*Merry, S. J.
Mindel, J. B. (C)
Mitchell, D.
Ormiston, T. T.
*Palmer, R. H. F.
Phillips, A. P.
Robertson, A. G. (C)
Ross, Neil
Stokes, P. M.
Storrar, J. E.
*Sutherland, Miss A. M.
Thompson, A. P.
Thorman, Miss I. V. (B)
Turnbull, A. S. (B)
Turnbull, J. M.
*Tweedale, O. L.

* Denotes Second Class Honours.
(C) Denotes Credit in Chemistry.
(B) Denotes Credit in Biology.

Second Examination:

Adamson, I. W.
Barr, Macleod (H)
Borthwick, R.
Brown, T. C. (P)
*Burrows, R.
Campbell, E. A. (H)
Caufield, W.
Clark, Miss S. T.
Cochran, F. R.
*Davies, J. G.
Duguid, H. I.
Earnshaw, D. G.
Falconer, J. (P)
Fraser, C. D.
*Fraser, G.
*Gilling, G. H. C.
*Gitter, M.
Gruchy, C. L.
Hall, Miss E. K. M. (P)
*Hallam, C. W.
Hockenhull, E. W. F.
Huck, R. A.
Hurrell, A. D. (P)
Jackson, O. F.
McCallum, G. (H)
*Macaulay, M
Mackay, J. M. K.
Maclennan, W.
Martin, R. D. (H)
Mitchell, Miss H. M. (H)
*Morris, Miss E. K.
*Morton, K. E.
Munro, J. (H)
Newsam, I. D. B. (H)
Owen-Pawson, D. D. (H)
Penman, J. H.
Philp, G. I. (H)
*Rankin, J. E. F.
Rashid, A. B. (P)
Richardson, R.
*Scrivens, G. W.
Skowronski, Z. J. K.
*Sloan, W. H.
Smith, A. G.
*Thomson, B. R.
*Trought, V. P. T.
Warnes, W. E. J.
Williamson, P. T.
Young, D. W. (H)

* Denotes Second Class Honours.
(P) Denotes Credit in Physiology.
(H) Denotes Credit in Histology.

Third Examination:

Auchterlonie, D.
Baxter, J. T. (A)
Butler, M. C.
Christie, G. (A)
Clegg, F. G. (A) (H)
Coid, C. R.
Cooke, C. D.
Craig, W. A.
Cormack, J. G.
Cragg, D. A. (H)
Crighton, W. G. (A)
Davidson, J. B.
Dean, T. S.
Fraser, L. D. (A) (H)
*Gellatly, J. B. M.
Gittins, J. M. (P) (A)
Hare, W. C. D. (A)
Harrison, K. S. (P)
Henshaw, G. L.
Hooper, R. B.
Jennings, Miss A. H. (A)
Jones, E. J.
Lancaster, M. C. (H)
Logsdon, Miss S. E.
McLaughlin, J.
McLaren, L. E. (A) (H)
Magnus, A. S.
Magowan, J. W.
Mainzer, G. H.
*Martin, H.
Murchie, K. (A)
Murchie, W. (A)
Nadin, J. B. (A)
Parkes, W. D. C. (A)
Peacock, J. M. (A) (H)
Robson, G. L.
Ross, J. P.
*Scoggins, P. G.
Sharp, W. F. (A)
Shortridge, E. H. (A)
Sojka, Witold
Steele-Bodger, M. R.
Stirling, L. B.
Struthers, J. (A)
Sutherland, F. R.
*Thompson, P. K.
Turton, J. D. (A)
Vicary, R. W. G.
Watson, D. A.
Wight, Graham
Willder, A. G.

* Denotes Second Class Honours.
(P) Denotes Credit in Pharmacology.
(A) Denotes Credit in Anatomy.
(H) Denotes Credit in Hygiene.

Fourth Examination:

Ashworth, G. H. S. (Path)
Baker, F. C. (Path)
Bowman, J. G. W.
Brooks, C. R.
Brotherton, P. N.
Brown, C. W.
Chestnut, A.
Dick, G. H.
Davidson, I.
Edgar, D. G.
Evans, G. J.
Fairweather, A.
Geddes, W.
Gibb, A.
Gibbs, J. R.
Goodhand, R. H.
Hayes, G. E. (Paras)
Jones, R.
Lindley, P. E.
McFarlane, D. F.
McKenzie, R. L.
Millar, M. W.
Miller, A. H.
Mitchell, K. S.
Munro, I. G.
Murphy, S.
Pratt, W.
Prescott, J. G.
Seamer, J. H.
Sluszkiewicz, E.
*Stead, P. Y.
*Sutherland, Miss C. A.
Taylor, J. B. D.
Thomson, G. G.
Walker, C.
Walker, J. D.
Whitney, E. W.
Wilson, W.
Wood, C.

* Denotes Second Class Honours.
(Path) Denotes Credit in Pathology.
(Paras) Denotes Credit in Parasitology.

Final Examination:

Auchnie, J. A.
Blythman, W. G.
Caird, Miss E. A. Y.
Copland, Miss E. A.
Cowie, J. F.
Curry, G. D.
Fleming, J. A.
Head, K. W.
Huddart, J. E. (M)
Kerr, W. J.
Kydd, W. J. C.
Mallock, R. A. H. W. (M)
Millar, Miss M. E.
Moodie, E. W.
Moore, E. R. (M)
Philp, J. M.
Phillips, J. E.
Preston, Miss A. C.
*Rafferty, G. C.
Renton, C. P.
Richardson, S.
*Riddell-Swan, J. M.
*Rodger, J. K.
Roe, D. M.
Roszek, K. S.
Sadek, S. E. D.
Soulsby, E. J. L. (M)
Steele-Bodger, A.
Stockdale, H. G.
Tench, A. H.
Thomlinson, J. R.

* Denotes Second Class Honours.
(M) Denotes Credit in Medicine.

Glasgow

First Examination:

Anderson, A. C. (C)
Anderson, C. C.
*Armour, James
*Bent, C. L.
*Cameron, Miss M. C.
Carrigan, T. D.
Cocozza, G.
*Emmett, F. M.
*Gilchrist, Miss M.
Hamilton, R. C.
Harrison, T. C.
*Howat, A. N. H.
Howat, W. P. (C)
*Hutchinson, Michael
King, J. G.
Knight, T. A. (C)
*Kyle, D.
Laing, D. F. (B)
Leach, P. A. G. (B)
Macaulay, A. J.
McKean, Hugh
McLachlan, Iain
*McLaughlan, Ian
MacLeod, A. J. (C)
MacMillan, I. A.
*McPherson, Robt.
Mann, Miss E. M. (C)
Nicholson, T. B. (C)
Ommer, F. G. (C)
*Parkyn, D. R.
Renton, Miss J. P.
Steel, E. R.
Taylor, A. M.
Taylor, J. W.
Todd, D. T. (C)
Watson, J. G. (B)
Watson, R. C.

* Denotes Second Class Honours.
(C) Denotes Credit in Chemistry.
(B) Denotes Credit in Biology.

Second Examination:

Anderson, A. W. (H)
*Asher, R. A.
Baird, N. D. (H)
*Barton, D. J.
Bellinge, W. H.
Brewster, J. R.
Broom, T. M. (H)
Calder, R. H.

Callow, M.
Gibson, R.
Goalen, H. N. (H)
Isbister, J.
*Lawson, R. B.
Loudon, A. J. B.
McCulloch, Buchanan
McDonald, A. W.
Macintyre, D. I.
McPhee, A. A.
Murdoch, M. I. (H)
Murray, G. D. (H)
Parker, F. J. (H)
Pronger, Mrs. M.
Randell, G.
Ricketts, Miss B. C.
Robertson, D. (H)
Schwartz, C. (H)
*Scott, W. N.
Smith, J. M. (H)
Sothern, J. M.
Strang, J. R.
Thomson, T.
Townley, Miss D. M.
Vincent, J. F. D.
*Watkinson, D. E.
White, M. G.

* Denotes Second Class Honours.
(H) Denotes Credit in Histology.

THIRD EXAMINATION:

Andrew, A. S.
Archibald, Miss H. I.
Barr, W. M. (P) (H)
Boyd, H. W. (H)
*Buchanan, J.
Dexter, M. R.
Dickson, I.
Ferguson, Murdo
Geddes, Miss M. B.
Gibson, A. C.
Gracie, Archibald
Gross, Miss I. M.
Harkness, A. C.
Heyworth, Brian
*Hosie, K. F.
Hugh, A. R.
McCrone, R. R. (P) (H)
MacDonald, I. S.
McNicol, O. D.
Madden, E.
Marshall, A. A. (A)
Mowat, G. N.
Payne, H. M.
Sachs, Max (A) (H)
Shepherd, G.
Strachan, T. A. (P)
Vallely, T. F.
West, W. R. G.
White, Miss C. H.
Wilson, A. G.

* Denotes Second Class Honours.
(P) Denotes Credit in Pharmacology.
(A) Denotes Credit in Anatomy.
(H) Denotes Credit in Hygiene.

FOURTH EXAMINATION:

Barclay, J. M.
Bennett, J. R.
Boyd, R. P.
Brown, W.
Dunn, T. J.
Hair, D. C.
Hamilton, D. F.
Harrison, N. J.
Howieson, J. T.
Jarrett, W. F. H. (Paras)
Lindsay, T. P.
MacInnes, D. I.
McMeekin, W. J.
Millar, J. S.
O'Reilly, V. J. A.
Patterson. N. M.
Russell, D.
Sommerville, J.
Spence, N.
Strang, A. L. D.
Thomson, E. C.
Wilson, R. L.

(Paras) Denotes Credit in Parasitology.

FINAL EXAMINATION:

Anderson, J. A.
Aharoni, C.
Barr, R. B.
Cameron, I. H.
Carmichael, A. M. E.
Douglas, C.
Douglas, T. A.
Dunlop, J. C. M.
Forsyth, A. M.
Goodwin, R.
Gordon, Miss E. D.
Grindlay, M.
Kerr, J. D.
Lewis, A. C.
McLean, J. B.
McCracken, D.
McCulloch, J. L. M.
McPhedran, D.
Moors, W. M. (M)
Munro, D. W. J.
Nimmo, I. S.
O'Hagan, C.
Paton, I. M.
Scott, A. M.
Torley, J. A.
Traub, L. D.
Warnock, H.
Williams, Miss L.
Young, I. J. B. (M)

(M) Denotes Credit in Medicine.

WORLD POULTRY CONGRESS, 1948

His Majesty's Government has accepted an invitation from the Danish Government to send a Delegation from the United Kingdom to the Eighth World's Poultry Congress which is being held in Copenhagen in August of this year.

Sir Donald E. Vandepeer, K.C.B., K.B.E., the Permanent Secretary of the Ministry of Agriculture and Fisheries, will be the Leader of the Delegation, which includes representatives of the Agricultural Departments, the Ministry of Food, Research and Training Centres, and the Poultry Industry. In the first category the Animal Health Division will be represented by Mr. T. N. Doyle, F.R.C.V.S., D.V.S.M., Mr. J. E. Wilson, B.SC., M.R.C.V.S., and Mr. A. Buxton, M.R.C.V.S., all of the Ministry's Veterinary Laboratory.

NOTES AND NEWS

Diary of Events

July 27th.—Joint Meeting of the Veterinary State Medicine and Technical Development Committees, N.V.M.A., 11 a.m.; Meeting of Committee to make nominations for Standing Committees of the Association for 1948-49, 2.15 p.m. Both at 36, Gordon Square, W.C.1.

July 30th.—Meeting of the N.V.M.A. Oversea Services Committee, 36, Gordon Square, W.C.1, 11 a.m.

July 30th.—Meeting of the Royal Counties Division, N.V.M.A., at the A.R.C.'s Field Station, Compton. (*See Notice.*)

Aug. 4th.—Meeting of the Editorial Committee, N.V.M.A., at 36, Gordon Square, W.C.1, 2.30 p.m. (N.B. *Change of date from August 11th*).

Aug. 13th.—Meeting of the Yorkshire Division, N.V.M.A., at Leeds (Hotel Metropole), 2.30 p.m.

Sept. 8th to 15th (inclusive).—N.V.M.A. Congress at Southport.

Sept. 11th.—13th Annual Meeting and Dinner of the Royal (Dick) Veterinary College, Alumnus Association at Southport (Prince of Wales Hotel), 7.30 p.m.

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N.V.M.A. Congress Ticket Applications

Several weeks have elapsed since the issue to members N.V.M.A., through the medium of the *Record*, of the Ticket Sheet for applications for tickets for the functions, excursions, etc., in which they wish to participate. Will all who will be attending the Southport Congress and who have not yet responded, kindly see to this matter at once in order that office work and catering arrangements may be facilitated and possible disappointment avoided.

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Conference on Grassland and Animal Health

The Association is arranging a conference on GRASSLAND AND ANIMAL HEALTH to be held in London on Thursday and Friday, October 28th and 29th, 1948. Further particulars will be announced later.

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The Veterinary Surgeons Bill

As recorded in our last issue, the Veterinary Surgeons Bill passed through all its remaining stages in the House of Commons on Friday of the previous week. It was then returned to the Lords (from whom it had been received) for consideration of the Commons amendments. Two of the three clarified the relevant conditions to be satisfied by the University of London before it can appoint its second member to the Council of the Royal College of Veterinary Surgeons; the third ensures that a person under the age of 18 will not be allowed to carry out operations. These amendments were agreed to and the Bill now awaits the Royal Assent.

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ROYAL COLLEGE OF VETERINARY SURGEONS

Re-election of Mr. H. J. Dawes as President

At the June Quarterly meeting of Council, R.C.V.S., Mr. Howard Winnington Dawes was unanimously re-elected to his third successive year of office as President. The Vice-Presidents are Professor T. Dalling and (re-elected) Major A. B. Mattinson. Professor J. B. Buxton was elected Treasurer of the College in place of Lt.-Col. P. J. Simpson who, to the great regret of his colleagues, has retired from the Council. A full account of all the meetings will be published in the supplement to *The Veterinary Record*.

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PERSONAL

Birth.—MACKENZIE.—On Saturday, July 17th, 1948, at Woking Maternity Home, to Mary (*née* Burrow) and Peter Z. Mackenzie, M.B.E., M.R.C.V.S.—a daughter.

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Forthcoming Marriage.—GRATER—SLADE.—The engagement is announced between George Stephen Grater, M.R.C.V.S., only son of Mr. E. W. Grater and the late Mrs. Grater of South Nutfield, Surrey, and Betty Eileen Elizabeth, younger daughter of Mr. and Mrs. W. H. Slade, of Adbury, Newbury, Berkshire.

Accident to Capt. T. L. Wright.—Our readers will learn with much regret that Capt. Thomas L. Wright, Hon. Veterinary Surgeon to the King and immediate Past Hon. Secretary of the N.V.M.A., was badly injured on Thursday of last week while crossing Piccadilly after he had dined with the Veterinary Surgeon and one of the riders of the Argentine Equestrian Olympic team. Capt. Wright was about to enter his own car when he was knocked down by another, and sustained a compound fracture of the right tibia and fracture of the fibula. He was taken to St. George's Hospital, where he will have to remain probably for six to eight weeks, as it is likely that the insertion of a plate will be required. We extend our sympathy to Capt. and Mrs. Wright and trust that he may make a complete recovery in due course.

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Royal Garden Party.—The President of the Association, Mr. L. Guy Anderson, and Mrs. Anderson attended the second Royal Garden Party held at Buckingham Palace on Thursday last.

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Mr. I. Haq's Doctorate.—At the convocation held on July 3rd, Mr. I. Haq, Graduate of the Lahore Veterinary School (1938), has been awarded the degree of Doctor of Philosophy of the University of Reading (Faculty of Agriculture). The subject of Dr. Haq's thesis was "Studies on tissue cells (other than spermatozoa) of bull semen and the cause of sterility in bulls."

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Colonial Veterinary Service Appointment Correction.—In our issue of January 10th (**60**, 20) we reproduced a Colonial Office announcement of the appointment of Mr. D. P. White, M.R.C.V.S., Veterinary Officer, Malaya, as Chief Veterinary Officer, Malaya. Mr. White's appointment was that of Chief Veterinary Officer, Singapore.

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Will.—Mr. James Macfarlane, M.R.C.V.S., formerly of 1027, Sauchiehall Street, Glasgow, and late of Ashleigh, Gargunnock, left £3,746.

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R.C.V.S. OBITUARY

Waddell, James, Capt., late R.A.V.C. Graduated Edinburgh December 18th, 1909. Died July 10th, 1948, in his 64th year.

Capt. James Waddell, M.R.C.V.S.

We record with deep regret the death of Capt. James Waddell, Divisional Inspector, Kirkcudbright, which took place on Saturday, July 10th, at Castle Douglas hospital after a short illness.

A native of Ayrshire, he took up practice in Castle Douglas and relinquished that to hold the first whole-time appointment to the Stewartry County Council, being transferred to the Ministry of Agriculture and Fisheries in 1938 as Divisional Inspector for Division 74.

Capt. Waddell served during the first world war with the R.A.V.C., and during the last war did service with the Special Police in the Stewartry. Married to a daughter of the late George Bryson, J.P., Boreland of Parton, Castle Douglas, a very sad feature of his death is the fact that his wife predeceased him by only two weeks and he was at her interment in Parton Cemetery on June 29th. He leaves a son and daughter—both married—and an elder brother, with whom we sympathise in their double loss.

The funeral took place on Tuesday, July 13th, from his new home in Castle Douglas to Parton Churchyard, in which a large representation of Stewartry farmers and friends took part. The funeral service was conducted by the Rev. G. Tuton. The following members of the veterinary profession attended: Messrs. F. A. Gordon, G. D. Leslie, J. Allan, N. A. MacEwan, J. McQuaker, J. A. McKinnon, G. A. Sangster, Q. Stewart, A. B. Kerr, I. A. Bradley and T. A. Vickers, of Messrs Davidson and Reid, M.R.C.V.S., Castle Douglas.

. . .

An Appreciation by His Colleagues

During the past few years Jimmy, as we all knew him and whose passing we all mourn, had been afflicted with illness and deep anxiety, which, with characteristic fortitude, he bore uncomplainingly, almost unmentioned, but, when on June 27th he lost his charming and talented wife his struggle was at an end, and he died, as he had lived, quietly, peacefully and bravely, a short thirteen days after she had gone. We, his colleagues, though numbed by our sense of loss are grateful that our memories of him are such that we shall always treasure and cherish them.

First we remember Jimmy as a loyal and trusted friend, one who in all honesty could be called a man, whose simple creed that right was right and wrong was wrong, was so refreshing and reassuring in these days of more uncertain and complex moral values. Intensely practical, Jimmy had little time for purely text-book learning, but he had nevertheless a comprehensive knowledge of veterinary and agricultural affairs and his advice was widely sought by farmers and stockowners throughout the Stewartry.

As Divisional Inspector for the Ministry he will be remembered not only by the local farmers, but also by the Attested Ayrshire Herd owners throughout the country who regularly attend the sales of Attested stock at Castle Douglas Market, and they will remember him as a quietly efficient official, courteous and kindly, but strong of character and not to be trifled with.

We like best, however, to remember him before the last few unfortunate years of his life, a stocky, sturdy figure of a man, fresh coloured, alert and strong, a typical countryman of the best sort, knowledgeable about stock, knowledgeable about farming, an elder of the Kirk, a respected member of an important agricultural community, completely attune with that beautiful countryside he loved so well. His tastes, if simple, were straightforward and wholesome. His gardening, his bees, an occasional day with the gun, or social evening with kindred kindly folk were his chief relaxations.

His professional duties were always carried out with meticulous care, and although he never claimed pre-eminence in any sphere of his profession, and, indeed, often declared that his was not a scientific mind, his sterling work, nevertheless, has left its mark in the Stewartry, most notably, perhaps, in the number of tuberculefree herds in the division. We could write much more of our late colleague, of his Army career, of his activities in the last great war, and of the many kind acts which characterised his life, but space forbids, so in the meantime we are content to look back over these years of happy associations with Jimmy, and remember with deep gratitude the many kindnesses which he and his wife have shown us.

Lastly, to their son and daughter we extend our sincere and heartfelt sympathy, secure in our knowledge that like their parents they will meet their sorrows and difficulties with courage, strength and dignity.

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VETERINARY CONTROL OF ANIMAL HUSBANDRY IN MADRAS

We are glad to reproduce, as evidence of growing acceptance of the profession's contention that administrative control of matters pertaining to animal husbandry should be placed in veterinary hands, the following Press Note (No. 145) dated Fort St. George, June 5th, 1948:—

"Animal Husbandry Department, Madras"

"The Veterinary Department of this Province deals not only with veterinary work, but with all aspects of animal husbandry. The Government have accordingly decided that the Veterinary Department be renamed as the 'Animal Husbandry Department.' The designations 'Director and Joint Director of Veterinary Services' will be changed to 'Director and Joint Director of Animal Husbandry' respectively. The terms 'Veterinary Assistant Surgeon' and 'District Veterinary Officer' will, however, remain unchanged. The changed designation in regard to the Director of the Animal Husbandry Department has been incorporated in the Livestock Improvement Act of 1940 as re-enacted in 1948."

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ROYAL SOCIETY OF MEDICINE

Sir Henry Dale, O.M., was elected president of the Royal Society of Medicine at the annual meeting of Fellows held recently The retiring president, Sir Maurice Cassidy, said that he believed that this would be the first time in the history of the society, which was founded 143 years ago, that the President was not a practising physician, surgeon, or specialist. It was a sign of the times—and it was also high time—that the council should recognise in this way a man whose life had been devoted purely to the research side of medicine.

The hon. Fellows elected this year are Sir Archibald Gray, General Smuts, Professor Charles Singer, Sir Henry Tidy, Professor Georges Debaisieux (Louvain), and Dr. Mathew Makkas (Athens).

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REGULATIONS GOVERNING IMPORTATION OF DOGS INTO SWEDEN

In view of the facts that there is a considerable traffic in dogs from this country to Sweden and that ignorance of the above regulations has resulted in some animals having to be returned, we print the latest issue for the information of readers concerned.

The importation of dogs into Sweden is permitted on the following conditions:—

1. That a blood test is taken of the animal one week before its departure from England by a registered veterinary surgeon and the animal found free from infection by leptospirae;

2. That a certificate is produced to the Swedish Customs from a registered veterinary surgeon to the effect that the dog is sound and is not suspected of carrying any infectious disease of domestic animals. The certificate should be accompanied by a declaration signed by the British exporter that, to the best of his knowledge and belief, the dog has been in England during the six months preceding its departure, such declaration being attested by a Swedish Consul or by the local police;

3. That the dog is examined by a qualified veterinary surgeon at the place of importation and found healthy;

4. That the dog is then admitted to quarantine for one month and transported thereto in a closed basket or box;

5. That a second blood test is taken of the dog not earlier than one week before its return to its owner and the animal found free of infection by leptospirae and also of signs of other infectious diseases;

6. That if during the period of quarantine the dog shows a positive reaction to leptospirae, it should be put to death without expense to the Swedish Government, or, if an agreement to that effect can be made between the buyer or seller in the exporting country, returned to the exporting country within 30 days of the disease being detected;

7. That the owner of the dog or his agent pays all expenses in connection with the import permit;

8. That the dog is not injected against leptospirae either during the period of quarantine or immediately after.

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POULTRY DISEASE CONTROL IN SCOTLAND

A serious view of the recent outbreak of fowl pest at Leith is taken by the N.F.U. of Scotland's Poultry Committee, which has urged the authorities to do everything possible to avoid future outbreaks of this disease. The Leith outbreak was the first case of fowl pest in Scotland. It arose, the Ministry of Agriculture reported, from the illegal movement of some live birds from premises in Yorkshire where the disease also exists. On the general question of health and quality of poultry stocks, the Committee has agreed to renew its efforts to secure a system of control of hatcheries in Scotland. At present it is open for all and sundry to hatch and sell day-old chicks, irrespective of the origin of the eggs.—*Scottish Farmer*.

* * * *

FIRST INTERNATIONAL CONGRESS ON ARTIFICIAL INSEMINATION

Reporting from Milan on the above Congress to the *Farmer and Stock-Breeder* (issue June 29th) Mr. H. R. Davidson states that it was from the lips of the official interpreters that he got what he believed to be the real lesson of the Congress. "That lesson is that insemination is only one of many processes involved in reproduction. So as these processes come more and more under control to be carried out artificially, we are entering on a period of artificial reproduction. To think and talk as if insemination were the only factor that can be artificially applied is wrong.

"This is how it arose. Professor Amantea, after lecturing on the historical importance of Lazarus Spallanzani, the first Italian biologist interested in A.I., proposed that there should be founded an International Institute for Research in A.I. But A.I. in Italian is referred to as *fecondazione artificiale*, while in French it is *fecondation artificielle*, and in the discussion on whether such an institute should be formed, a French delegate pointed out that while our conference was convened to study the narrower subject of insemination, he thought an international institute should be concerned with 'fecundation,' if one could coin a word.

"The congress obviously felt that an institute of this kind (and the suggestion seemed to involve its establishment in Italy) needed further thought, but the obvious lesson that must be digested when delegates return home is the necessity to take a very wide view of what artificial reproduction as distinct from merely insemination really means."

The report proceeds: "Apart from the fact that unfortunately no Russian scientists or technicians were present, it is a highly representative congress in which Great Britain is well to the fore. Italy naturally heads the list with 255 members; then come France, 27; Great Britain, 26; Belgium, 16; U.S.A., 15; Denmark, 12; Switzerland, 12; Germany, 11; Sweden, 7; Holland, 7; Argentina, 5; Portugal, 5; Algeria, 4; Egypt, 3; Australia, 3; Austria, 3; Czechoslovakia, 3; Norway, 3; Luxembourg, Bulgaria, Chile, Morocco, 2 each; East Africa, S.E. Africa, South Africa, New Zealand, Hungary, Poland, China, Philippines, India, Pakistan, Tunisia, Yugoslavia, Costa Rica, Brazil, Paraguay.

"The official British delegates were Dr. John Hammond and Mr. T. Dalling, of the Ministry's Veterinary Laboratory (for whom Mr. Stewart, of Reading, deputised), and the other delegates include Sir Thomas Baxter, Dr. J. Edwards and Mr. W. R. Trehane, of the M.M.B.; Sir Frank Ware (till recently prominent in Indian veterinary circles), Mr. E. Quested, Dr. Arthur Walton, of Cambridge, and Mr. I. L. Mason, of the Edinburgh Bureau of Animal Breeding. Dr. A. E. Parkes holds a watching brief for the Medical Research Council.

"Much of the value of these congresses lies in the personal contacts made and renewed, and this is not the place to report even some of the talks. But I should fail if I did not say that the prestige of the British team already stands high. Dr. Hammond's international reputation was confirmed by the number and interest of those who came to his lecture on the first day. Dr. Edwards and Dr. Walton both provided first-rate examples of how to put their material before an international audience, a capacity curiously lacking in so many other cases.

"One point that interests me much is the varying uses of A.I. by different countries. Italy is interested in disease control. Sweden thinks in terms of total fertility. Poland and some other countries are concerned with the rapid building up of stocks. Denmark is moving on from mastering technique and organisation to livestock improvement. But whatever each country requires they all need reliable common standards to compare results with one another, and Dr. Edwards' plea for a common expression of conception rate was one of the most useful contributions so far."

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ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

Sheep Scab:

Stafford.—28, Horse Fair, Rugeley, Staffs. (July 13th).

* * * * *

Animal Health Trust.—On Wednesday next the Woolwich Canine Society are holding an Open Dog Show at Olympia in aid of the Trust. There will be an obedience demonstration by trained dogs between 3.30 and 4 p.m. Judging of other classes will continue from 11 a.m. until 4 p.m. Price of admission is 4s.

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MILK PAYMENT BY QUALITY

Information on schemes devised for milk payment by quality in certain of the main dairying countries of the world is (says *The Scottish Farmer*) being sought by the Milk Committee of the National Farmers' Union of Scotland from the International Federation of Agricultural Producers. It is felt by the Committee that a workable scheme for Scotland should be framed as soon as possible to overcome the objection that a producer of good quality milk of higher than average quality fat is paid the same price per gallon as the producer of milk of relatively inferior quality and of lower than average fat content. The Committee is aware that any scheme of differential payment must not only be workable but should also avoid the objection that its advantages would be outweighed by its cost of operation.

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A CULTURE METHOD FOR *LYMNAEA TRUNCATULA*

Dr. E. L. Taylor and Mr. Alan Mozley, of the Ministry's Laboratory at Weybridge, contribute the following letter to the issue of *Nature* of June 5th:—

The amphibious snail *Lymnaea truncatula*, which serves as an intermediate host of the liver fluke, *Fasciola hepatica*, has been found in the past to be somewhat difficult to maintain in laboratory culture. In connection with current work on the epidemiology of the severe disease of grazing animals which is caused by this parasite, one of our first problems was to establish satisfactory means of culturing the snail. Our attempts have proved so far successful that we are able to grow the snails in unlimited numbers, at different seasons of the year and to a larger size than they usually attain in their natural habitat.

On account of the particular interest of this mollusc and its association with *Fasciola hepatica* in the teaching of biology, as well as for the benefit of research workers in the field of parasitology, we felt that a description of the culture method might be of interest and value.

Having met with little success by aquatic culture methods, we proceeded with an attempt to reproduce in glass and earthenware

vessels the natural habitat of the snail. This habitat comprises the small open mud flats that lie between pools of shallow water and low grassland. Finally, we developed the following technique. Unglazed earthenware pans, without holes in the bottom, 12 to 18 in. diameter, of the kind used by nursery men, serve as containers for the mud. Before use the pans are soaked for some days in pond water, then they are dried and coated, on the outer surface only, with paraffin wax, in order to prevent undue loss of water by evaporation. The mud which is to form the substratum of the culture is mixed with pond water in such proportions as to give it a wet plastic consistency. It is then sterilised by heat to destroy unwanted trematode infection and is placed in each pan in such a way as to form an even slope extending from near the upper lip on the one side to the floor of the pan on the other side. Depressions are made on the surface of the slope in several places, simulating on a small scale the footprints of animals, and sufficient pond water is poured over the surface of the mud to form a small pool at the bottom of the slope. The pan is then covered by a piece of glass and placed in a greenhouse where there is abundant light, to encourage the growth of algae, and heat adequate for rapid development of the snails.

In two or three weeks the mud becomes covered with a thick growth of algae and is then ready for the introduction of the snails. A light sprinkling of a mixture of equal parts of finely powdered natural chalk and fine oatmeal flour is applied to the surface of the mud at weekly intervals. This supplement to algal food, along with the addition of distilled water which is poured over the surface of the mud to make up for slight loss by evaporation, is all that is needed for the maintenance of the culture. It is important that the water and the mud should be of the most suitable kind for the culture of this snail, and it has been our practice to collect the mud from a heavy clay soil on which the snails are found to thrive particularly well in the natural state. The water used in the first preparation of the mud slope and for the first pool in the culture dish is also collected from this natural habitat. The sterilisation of the mud is only carried out to eliminate unwanted fluke infection for the purpose of our particular work, and might not be necessary for ordinary purposes.

Our experience has revealed a much more rapid rate of multiplication of this snail than we had anticipated, and maintenance of a culture is such a simple matter that there would appear to be every reason for developing its use in the teaching of biology for demonstrating the life-history of a trematode.

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the N.V.M.A.

Correspondents are requested to write as briefly as possible

THE BULL IN TRANSMISSION OF NON-SPECIFIC INFECTIOUS STERILITY

Sir,—Dr. Rottensten's communication entitled "May the Bull be Responsible for the Transmission of Non-specific Infectious Sterility?" published in *The Veterinary Record* of July 3rd is of considerable interest, and his conclusions are strongly borne out by investigations in this country.

For example, a bull producing quite good semen was used to inseminate 388 cows over a fairly brief period, and a conception rate of only 14 per cent. to the first service was obtained. The cows which failed to this bull were then inseminated using semen from a highly fertile animal, yet he also only obtained 14 per cent. conception rate to the first service. The same semen samples from the fertile bull were also used to inseminate other cows which had not been inseminated by the first bull, and in this case a normal high rate of fertility was obtained. It was assumed, therefore, that the original bull was responsible for the very low rates of conception obtained with the second animal, and bacteriological examinations were carried out but failed to reveal anything significant. Unlike Dr. Rottensten's experience with his cows, great difficulty was found in getting animals which had been inseminated by the infertile bull to conceive at all, and out of 205 cows which failed to him, 114 were either still sterile or had been slaughtered as sterile one year from the date of the first insemination.

Apart from the very serious economic losses in this case the whole question of diagnoses of fertility is involved. Whereas it was considered that a bull was normally fertile if one examined his semen and found mass activity, etc., this cannot now be regarded as an accurate criterion—a fact which must have been only too well recognised in many A.I. centres. On the other hand, there is little doubt that degrees of fertility in bulls are not always due to bacteriological causes and that the enzyme system and biochemical factors also play their part.

For the practitioner carrying out sterility investigation it does render one of the simplest tests, *i.e.*, semen examination, a question of doubtful significance in many cases.

Yours faithfully,

L. E. Rowson, M.R.C.V.S.

Cambridge & District Cattle Breeders, Ltd.,
The Gravel Pits,
Huntingdon Road, Cambridge.
July 12th, 1948.

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THE USE OF PENICILLIN IN VETERINARY PRACTICE

Sir,—I would ask all members of our profession to read, learn and inwardly digest Mr. Wilkinson's letter on this subject published in *The Veterinary Record*, June 19th, page 309. My appeal is directed especially to our younger members and students, for their future livelihood and reputations are at stake.

To my mind the defects of the recent Veterinary Surgeons Act which are filling your correspondence columns at the present time are of little significance when compared to the subject of this present letter. The mere passage of time will cure the one but will make the other much worse.

If members of our profession use their privileged position with regard to the obtaining of supplies of penicillin and other products merely as a means of taking an unfair advantage of the pharmacists to sell these products it will not be long before the chemists take the law into their own hands and the Penicillin Act will become a dead letter within a twelvemonth.

By and large, the veterinary practitioner is sturdily independent. That the profession can retain a product in its own hands is amply illustrated by the example of Strain 19 Abortion Vaccine. Unfortunately there are some members of our profession who are prone to submit to the unethical demands of their clients. With regard to these, their argument that the Scottish cowman is as capable as themselves of forming an accurate diagnosis in cases of mastitis calls for the reply that if this is the case the sooner these practitioners abandon their profession and become cowmen the better. The argument that the practitioner has not time to attend all his cases warrants the suggestion that he should employ more professional assistance instead of hoarding up so much money. The argument that professional assistance is not available is untrue and almost daily becomes more untrue.

The argument of the farmer that he cannot afford veterinary treatment comes, in my experience, almost always from the men who farm several farms, employ a multitude of workers, do no work themselves and complain bitterly of the burden of income tax. Any reply to this argument is as unprintable as it is unnecessary.

Yours faithfully,

J. P. Pickering.

Long Close, Hexham.
June 20th, 1948.

PENICILLINASE IN MASTITIS MILK

Sir,—Abraham and Chain as early as 1940 found that *Escherichia coli* produced an enzyme which completely inactivated penicillin and they named it penicillinase. During my work on bovine mastitis, I noticed that a large percentage of cow's milk contains *E. coli*. For this reason and due to the fact stated by Fleming that "If penicillinase-producing bacteria are present in sufficient number in a lesion associated with penicillin-sensitive organisms, the latter may be protected by the penicillinase," an attempt was made to detect penicillinase in a number of streptococcic and staphylococcic mastitis milks containing *E. coli*. Five ml. of each filtrate of milk was incubated one, two and three hours with equal amounts of penicillin (three units per ml.). All were tested on standard staphylococcus plates by the cylinder method used in the assay of penicillin. Control was made in each plate by using penicillin of the same concentration.

It was found that in one case of streptococcic mastitis milk, heavily invaded with *E. coli*, 50 per cent. of added penicillin incubated with filtrate of the milk was destroyed in three hours, indicating that the milk probably contained penicillinase. Penicillinase could not be detected in a number of filtrates of streptococcic and staphylococcic mastitis milk showing little or no growth of *E. coli*.

This observation may explain why the treatment of mastitis with penicillin fails in some instances.

Yours faithfully,

H. Farrag,
Lecturer in Bacteriology.

Veterinary College,
Fouad I University.
Cairo, Egypt.

References

Abraham, E. P., & Chain, R. (1941.) Further Observation on Penicillin. *Lancet.* **241.** 177-188.
Fleming, A. (1946.) Penicillin: Its Practical Application. Philadelphia: Blakiston. pp. 380.
Woodruff, H., & Foster, J. W. (1945.) Microbiological Aspects of Penicillin: Bacterial Penicillinase. *J. Bact.* **49.** 7-17.

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DISEASE AND THE EPIDEMIC—THE HOST, PARASITE, AND ENVIRONMENTAL FACTORS

Sir,—I was very interested to read Dr. Le Roux's letter in your issue of July 17th, 1948, regarding the influence of environmental factors on host and parasite and the necessity for further studies on climatology in connection with the control of disease.

As Dr. Le Roux makes no mention of this in his letter, he may not be aware of what to me has always seemed an inexplicable fact—that whereas several species of Bilharzia parasites are found infecting the domestic animals, including the elephant, throughout India, yet in man this disease, for the spread of which all the conditions seem favourable, is unknown even as an endemic. A few sporadic cases in man have been recorded in India from time to time, but I believe in each case it has been shown that the host had been in some other country, where he may have acquired the infection.

The suggestion that temperature exerts a considerable influence on the development of this parasite in its intermediate host might supply the answer, for which I have been searching for many years, but Dr. Le Roux will, no doubt, agree that further investigation of this point is required before its validity can be accepted.

As regards the general subject of climatology, when working with the Indian Council of Agricultural Research, realising the very scanty information we possess on the effect of climate alone on the development of livestock and their diseases, I was instrumental in getting prepared a long-term, comprehensive scheme of investigation, which would have enabled a comparison to be made between the effects of a very dry and a very humid climate on the development of exactly similar groups of Zebu cattle, but unfortunately funds had not been allotted for this important piece of work by the time I relinquished my appointment. I should like to express the hope that if this correspondence catches the eye of present-day Indian research workers, they may resuscitate interest in the scheme and arrange for its implementation.

Yours faithfully,

Springfield, Highclere, Nr. Newbury. FRANK WARE.

July 18th, 1948.

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INCIDENCE AND CONTROL OF TUBERCULOSIS

Sir,—I think that the recent article in *The Veterinary Record* showing the percentages of attestation in Great Britain gives a more gloomy impression of the state of affairs than is in fact the case.

In the milk-producing areas there are nearly as many licensed T.T. herds as attested herds. This will increase considerably the number of tuberculin-tested cattle in these areas which presumably is what is wanted. Many of these licensed T.T. herds have been "clean" for several years, but there is at present no incentive for a commercial milk producing herd to become attested.

The figures of the number of licensed T.T. herds, at any rate in this county, are made available each month to the Milk Committee of the County Council. It would, I think, be of interest, and propaganda value, if these figures could be calculated for the country as a whole and published.

Yours faithfully,

The Hollies, New Street, Wells. DENIS NICHOLSON.

July 12th, 1948.

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NYLON AS A DEEP SUTURE

Sir,—In my clinical communication (*Vet. Rec.* **60.** 135) I recorded the results of using nylon for ovarohysterectomies during the second half year, 1947. Reference to the use of deep nylon sutures by R. N. Phillips, M.R.C.V.S., D.V.S.M. (*Vet. Rec.* **60.** 273) and the recent letter by J. M. Mitchell, M.R.C.V.S., prompt me to send you the recorded results during the first half of this year.

The methods used with the No. 3 nylon are as originally described. Two hundred and nine operations were performed on the cat and 16 on the bitch. There were no untoward sequelae in any of the bitches and in only one kitten. This kitten developed a subcutaneous abscess three days after operation. The external abdominal muscle suture did not appear to be involved and was never removed. With adequate drainage and treatment recovery was uneventful.

This is the only time sepsis has been met in the over 400 cases recorded and I do not believe that the deep nylon sutures were at fault. I think therefore that, providing nylon is boiled for at least twenty minutes, it may be considered the almost perfect suture.

Yours faithfully,

Hampton, Middlesex. CHURCHILL FROST.

July 14th, 1948.

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CALVING INSTRUMENTS

Sir,—If a man is of good height, strong, has a long arm and is willing, the best instrument he can use is a hook with a rope attached. As I possessed none of these qualifications I used the long iron rod with a hook at the end, which at times was not easily manipulated by me. Prior to 1914 someone introduced a cane instrument instead of the iron; I found this a great advantage but it did not stand the same strain as the iron rod.

About 1925, with the aid of a country blacksmith and plumber, both good craftsmen, I had an instrument made out of a cable with a hook at one end and a handle at the other. The cable was part of the tool the plumber used for clearing drains. I had two instruments made of different thicknesses and found them very useful, very flexible and still rigid to move by the handle when in use; they would stand any strain that would be applied to them by pulleys or otherwise.

Two years ago I had a cow calved under my instructions without taking off my overcoat. It was 11 p.m. on a Sunday night and the farmer and his cowman were both very competent. The farmer was stripped and gave me a description of the position of the calf. I handed him the pliable instrument, told him what to do with it, and had the calf delivered in a short time.

The farmer remarked he had seen many instruments for calving but never one like that, and that if he had had the instrument he could have calved the cow himself.

Yours faithfully,

The Anchorage, Ardnadam, Dunoon, **Argyll.** A. HART.

June 14th, 1948.

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THE VETERINARY SURGEONS BILL*

Sir,—Your issue of May 15th has just reached me and I hasten to add my quota to the flames of controversy.

I suggest that the difficulty with regard to the title to be bestowed on unqualified "practitioners" (a difficulty which for most of us rests on a matter of principle, involving as it does the integrity of our profession) could be readily resolved.

The British are reputed to be masters of the art of compromise, but they have also a reputation for preferring the truth, which implies that when they apply a descriptive label to an article, the description is a true one, not designed to mislead. Combining these qualities of compromise and accuracy why not give the lay "practitioner" a title which, while retaining the description "veterinary practitioner" which has apparently won such undisputed favour amongst our legislators, would not be calculated to deceive a credulous public? These stipulations would, I submit, be met by the simple expedient of inserting the word "unqualified." The title would then read "Unqualified Veterinary Practitioner." Such a title has the merit of being unchallangeably accurate, but if it be suggested that it is a little harsh, let us soften the emphasis on the adjective and agree to a milder alternative—"Veterinary Practitioner (Unqualified)." The V.P. (U.) should be required to display his title *in full* on any premises used by him professionally, on letter headings, accounts, etc. We might then hope that: (*a*) the standing of our profession would be to some extent safeguarded; (*b*) the qualified general practitioner would be spared the necessity of constantly explaining to his bewildered clients, "Oh no, I'm no longer a veterinary *practitioner*; I'm a veterinary *surgeon*; if you require the services of a veterinary *practitioner* you must go round the corner to Mr. Snooks, late of the —— Animal Dispensary!" What a world of difference will lie in the subtle distinction between "surgeon" and "practitioner"! A distinction which the profession's potential clients will seek in vain to elucidate by consulting the most authoritative dictionary and will, rightly, conclude to be imaginary.

* Since these letters were received for publication, the Veterinary Surgeons Bill has passed Parliament and now awaits the Royal Assent.—Ed.

We were wont to be proud of our one-portal system of entry; that system is now surely outmoded when the very walls are to be breached by a horde of unqualified "veterinary practitioners." The final result must obviously be a grave deterioration in the reputation and prestige of an honourable profession.

Yours faithfully,

7, Napier Road, Singapore. A. G. Ralston.

June 18th, 1948.

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Sir,—The Bill is an insult to the profession and public alike. Our leaders have weakly bowed down to Government dictatorship. Had this Bill been presented to the profession first (which it most certainly should have been) it would have been hurled into the refuse bin where it belongs.

Debates on the Bill in Parliament were distinctive for the amount of muddle-headed blather spoken. It proved how ill-informed and grossly ignorant of veterinary affairs are the politicians of this country.

It seems that our ranks are to be filled with illiterate charlatans and personnel from so-called "welfare" societies. To all intents and purposes these people are to become our professional and social equals! The profession apparently pays for this "elevation." We must, therefore, elevate ourselves, and climb from the mire into which we have been pushed. Mr. Geffen's suggestion of the adoption of the title "Doctor" is an excellent one. In any case, we are as entitled to that rank as are all those medical men and women with qualifications of less than M.D.

In the meantime Mr. Gould and his co-voters should resign. Let us have a fresh election in which these gentlemen may again put up. Results will prove who we consider fit men to lead us.

Yours faithfully,

Carlyon Bay, Robert S. Townson.
St. Austell, Cornwall.

June 25th, 1948.

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Sir,—The answers to the questions addressed to me by Mr. George Gould are in the affirmative, but restricted—as has been my criticism throughout—to the action taken on April 29th ult. At no time has any imputation been cast on the good faith of those who favoured it, for there is abundant evidence that they have been no less strenuous in their efforts to safeguard our title than those who opposed it. The Bill has now had its third reading, and before the next annual general meeting of Council, all present members have to resign, and if they so desire, to seek re-election. How idle it is in the meantime, for any one of these who has served his profession well, to anticipate what is inevitable, and then on erroneous assumption. It savours of mock heroics!

Fortunately for the tranquillity of this immediate area of Hampshire, whether we agree or otherwise, Mr. Gould and myself enjoy that perfect understanding which is more common these days, between those who are neighbours, with the result that amongst other things, we can treat with equanimity the periodical accession and secession of clientèle—not always devoid of humour—and at times comforted by the knowledge that at their expense we have added to our clinical information, not a little of what cannot be found in text-books. In my opinion the best outside comment on this Bill appeared on the front page of *The Field* dated July 10th, and which is perhaps more readily accessible than those lines in Volume 1 of Butler's "Hudibras" to which I directed his attention.

Yours faithfully,

"Rothiemurchus," J. F. D. Tutt.
St. Cross,
Winchester.
July 18th, 1948.

* *

Sir,—It is usually unwise to interfere between two contestants, but in an effort to compose the differences between two old friends and close neighbours I risk the suggestion that Mr. Donald Tutt should yield to the weight of Mr. George Gould's arguments and admit that perhaps there was a skirmish: that is, a slight engagement terminated by the disappearance of the less resolute party in a cloud of dust.

Yours faithfully,

12, Springfield Place, Esmond Brown.
Bath.
July 19th, 1948.

USE OF THE WORD "VETERINARY"

Sir,—Whilst a great deal of resentment is being expressed by correspondents in the columns of *The Veterinary Record*, and justly so, over the granting of the title "Veterinary Practitioner" to quacks, no one appears to register a protest at the use of the word "Veterinary" by manufacturers of quack or patent medicines under the title of "Veterinary Products."

To add further insult to injury, we read in the agricultural press that farmers are agitating for the supply of penicillin on a veterinary surgeon's certificate, to be obtained, presumably, from the chemist, often self-styled "Veterinary Chemist."

I am prompted to ask what is going to be the attitude of our profession to such a demand? Are we going to allow ourselves to be "sold" once again?—or are we, through the medium of the N.V.M.A., going to adopt a firm and united stand against further encroachment upon our rights?

Yours faithfully,

Bridge Street, Llanrwst, N. Wales. R. L. Lewis.
July 10th, 1948.

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DIAGNOSIS OF JOHNE'S DISEASE

Sir,—Further to Dr. Levi's paper in *The Veterinary Record* of July 10th, I have left a few copies of Dr. Davies's paper on the subject of "The Microscopical Examination of Faeces for Johne's Disease" published by the Society of Veterinary Practitioners in 1945. These are available upon receipt of the below-production cost charge of 1s.

They are valuable particularly for the coloured illustrations of stained faecal smears.

Yours faithfully,

35, Iffley Road, Oxford. E. J. Heather.
July 12th, 1948.

DISEASES OF ANIMALS ACTS, 1894 TO 1937, AND AGRICULTURE ACT, 1937 (PART IV).

Summary of Returns of Confirmed Outbreaks of Scheduled (Notifiable) Diseases

Period	Anthrax	Foot-and-mouth	Fowl Pest	Parasitic Mange*	Sheep Scab	Swine Fever
June 16th to 30th, 1948	—	—	16	—	—	3
Corresponding period in—						
1947	3	6	92	—	2	1
1946	2	2	—	—	2	10
1945	2	6	—	—	2	19
Jan. 1st to June 30th, '48	47	—	206	1	26	20
Corresponding period in—						
1947	47	98	542	1	25	16
1946	51	28	—	4	36	275
1945	54	85	—	5	40	508

Note.—The figures for the current year are approximate only.

* Excluding outbreaks in Army Horses.

Tuberculosis (Attested Herds) Schemes

The number of Attested Herds, *i.e.*, herds officially certified as free from Tuberculosis as at June 30th, 1948, was as follows:—

England	Wales	Scotland	Total (Great Britain)
11,271	11,832	10,642	33,745

Advertiser's Announcement

Pirevan

Evans Medical Supplies, Ltd., desire to draw the attention of veterinary surgeons to the fact that the dosage of Pirevan 0·5 per cent. solution is 0·05 c.c. per kilogram body weight, with a maximum of 1 c.c.

For the last seven years this dosage has been clearly stated in all literature issued concerning Pirevan, but it has come to their notice that an old leaflet containing an error in dosage may still be in the possession of a few veterinary surgeons.

Anyone having such a leaflet is asked to destroy it and to apply to the Company for an up-to-date copy.